

Connecting via Winsock to STN

10/524, 410

Welcome to STN International! Enter x:x

LOGINID:ssptabac1774

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

\* \* \* \* \* Welcome to STN International \* \* \* \* \*

NEWS 1 Web Page for STN Seminar Schedule - N. America  
NEWS 2 MAY 01 New CAS web site launched  
NEWS 3 MAY 08 CA/CAPplus Indian patent publication number format defined  
NEWS 4 MAY 14 RDISCLOSURE on STN Easy enhanced with new search and display fields  
NEWS 5 MAY 21 BIOSIS reloaded and enhanced with archival data  
NEWS 6 MAY 21 TOXCENTER enhanced with BIOSIS reload  
NEWS 7 MAY 21 CA/CAPplus enhanced with additional kind codes for German patents  
NEWS 8 MAY 22 CA/CAPplus enhanced with IPC reclassification in Japanese patents  
NEWS 9 JUN 27 CA/CAPplus enhanced with pre-1967 CAS Registry Numbers  
NEWS 10 JUN 29 STN Viewer now available  
NEWS 11 JUN 29 STN Express, Version 8.2, now available  
NEWS 12 JUL 02 LEMBASE coverage updated  
NEWS 13 JUL 02 LMEDLINE coverage updated  
NEWS 14 JUL 02 SCISEARCH enhanced with complete author names  
NEWS 15 JUL 02 CHEMCATS accession numbers revised  
NEWS 16 JUL 02 CA/CAPplus enhanced with utility model patents from China  
NEWS 17 JUL 16 CAPplus enhanced with French and German abstracts  
NEWS 18 JUL 18 CA/CAPplus patent coverage enhanced  
NEWS 19 JUL 26 USPATFULL/USPAT2 enhanced with IPC reclassification  
NEWS 20 JUL 30 USGENE now available on STN  
NEWS 21 AUG 06 CAS REGISTRY enhanced with new experimental property tags  
NEWS 22 AUG 06 BEILSTEIN updated with new compounds  
NEWS 23 AUG 06 FSTA enhanced with new thesaurus edition  
NEWS 24 AUG 13 CA/CAPplus enhanced with additional kind codes for granted patents  
NEWS 25 AUG 20 CA/CAPplus enhanced with CAS indexing in pre-1907 records  
  
NEWS EXPRESS 29 JUNE 2007: CURRENT WINDOWS VERSION IS V8.2,  
CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 05 JULY 2007.  
  
NEWS HOURS STN Operating Hours Plus Help Desk Availability  
NEWS LOGIN Welcome Banner and News Items  
NEWS IPC8 For general information regarding STN implementation of IPC 8

Enter NEWS followed by the item number or name to see news on that specific topic.

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\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 15:17:44 ON 21 AUG 2007

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 15:17:53 ON 21 AUG 2007

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 20 AUG 2007 HIGHEST RN 945102-95-4

DICTIONARY FILE UPDATES: 20 AUG 2007 HIGHEST RN 945102-95-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

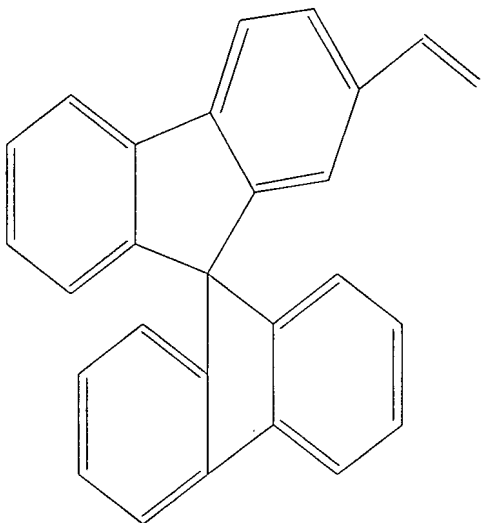
Uploading C:\Program Files\Stnexp\Queries\10524410\_Conjugated\_diSpiroFluorene.str

L1 STRUCTURE UPLOADED

=> dis l1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1 sss sam

SAMPLE SEARCH INITIATED 15:18:14

SAMPLE SCREEN SEARCH COMPLETED - 60 TO ITERATE

100.0% PROCESSED 60 ITERATIONS

1 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 736 TO 1664

PROJECTED ANSWERS: 1 TO 80

L2 1 SEA SSS SAM L1

=> dis scan l2

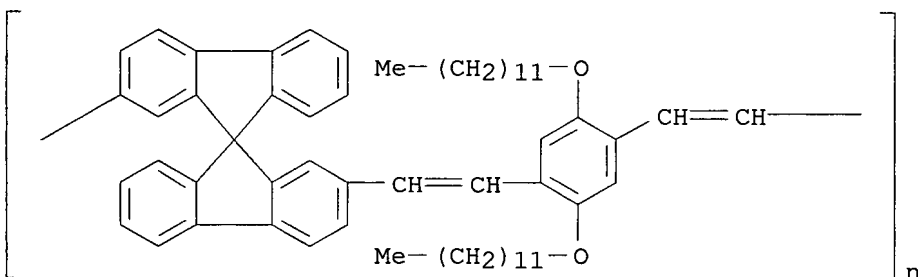
L2 1 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN

IN Poly[9,9'-spirobi[9H-fluorene]-2,2'-diyl-1,2-ethenediyl[2,5-bis(dodecyloxy)-1,4-phenylene]-1,2-ethenediyl] (9CI)

MF (C59 H70 O2)n

CI PMS

\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*



ALL ANSWERS HAVE BEEN SCANNED

=> s l1 sss ful

FULL SEARCH INITIATED 15:19:04

FULL SCREEN SEARCH COMPLETED - 1332 TO ITERATE

100.0% PROCESSED 1332 ITERATIONS

83 ANSWERS

SEARCH TIME: 00.00.01

L3 83 SEA SSS FUL L1

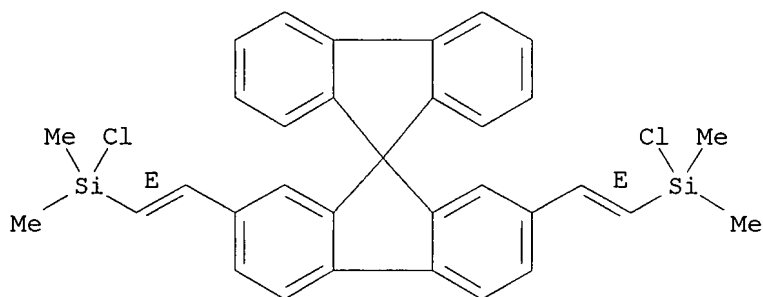
=> dis scan l3

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN

IN Silane, (9,9'-spirobi[9H-fluorene]-2,7-diyl-di-(1E)-2,1-ethenediyl)bis[chlorodimethyl- (9CI)

MF C33 H30 Cl2 Si2

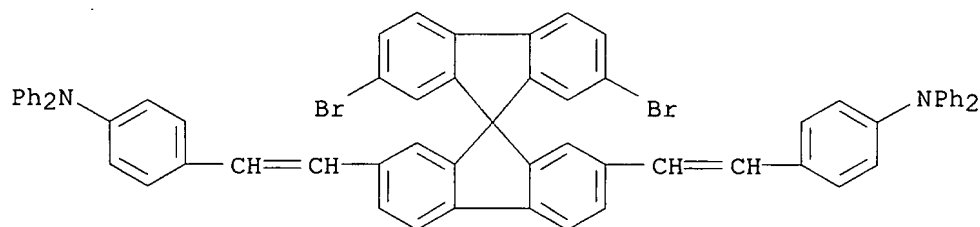
Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

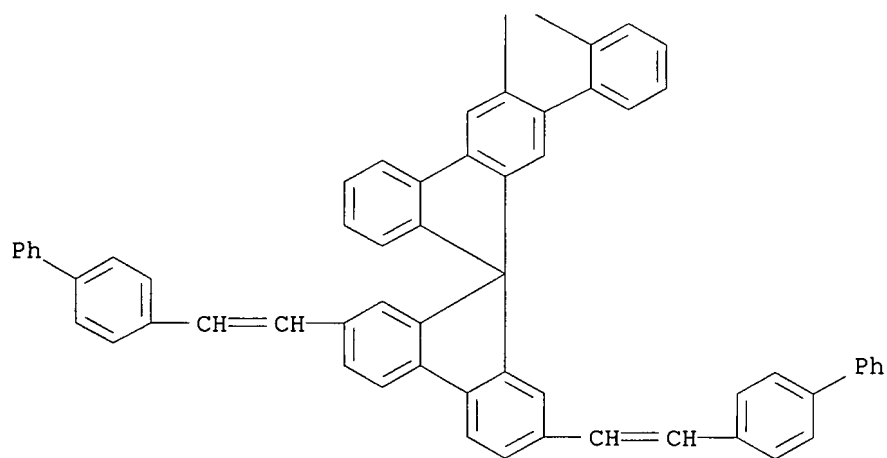
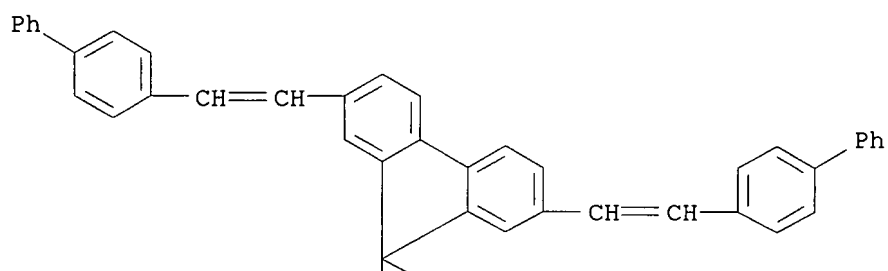
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):82

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Benzenamine, 4,4'-[(2',7'-dibromo-9,9'-spirobi[9H-fluorene]-2,7-diyl)di-  
 2,1-ethenediyl]bis[N,N-diphenyl- (9CI)  
 MF C65 H44 Br2 N2  
 CI COM



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

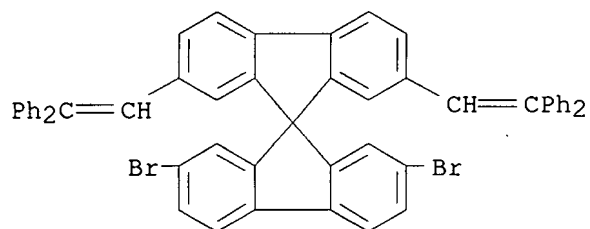
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Dispiro[9H-fluorene-9,6'-(12'H)-indeno[1,2-b]fluorene-12',9''-  
 [9H]fluorene], 2,2'',7,7''-tetrakis(2-[1,1'-biphenyl]-4-ylethenyl)- (9CI)  
 MF C100 H66



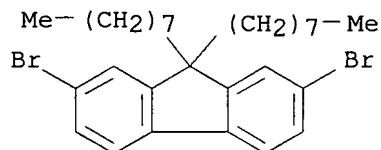
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 1,3,2-Dioxaborolane, 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-, polymer with 2,7-dibromo-2',7'-bis(2,2-diphenylethenyl)-9,9'-spirobi[9H-fluorene] and 2,7-dibromo-9,9-dioctyl-9H-fluorene (9CI)  
 MF (C53 H34 Br2 . C41 H64 B2 O4 . C29 H40 Br2)x  
 CI PMS

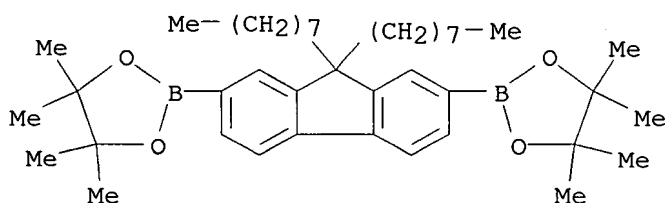
CM 1



CM 2



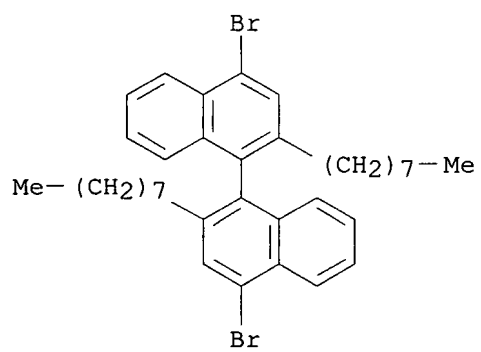
CM 3



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

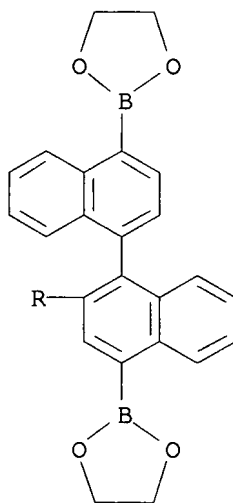
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 4,4'-dibromo-2,2'-dioctyl-1,1'-binaphthalene and 2,2'-[2-(pentamethylphenyl)[1,1'-binaphthalene]-4,4'-diyl]bis[1,3,2-dioxaborolane] (9CI)  
 MF (C61 H66 Br2 O4 . C44 H42 Br2 N2 . C36 H44 Br2 . C35 H34 B2 O4)x  
 CI PMS

CM 1

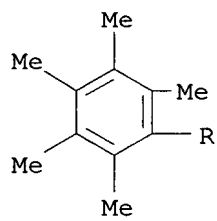


CM 2

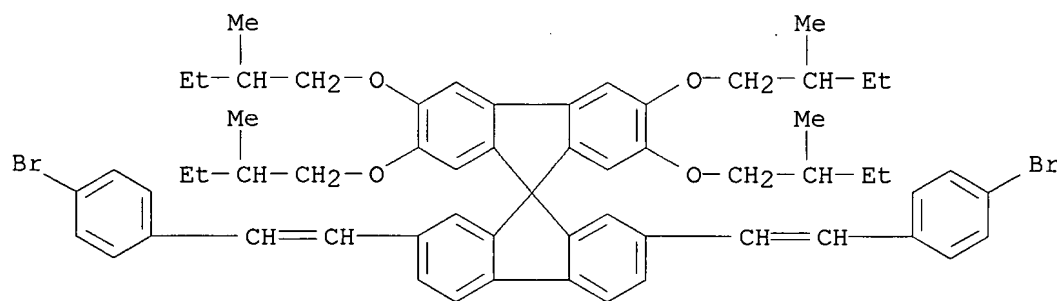
PAGE 1-A



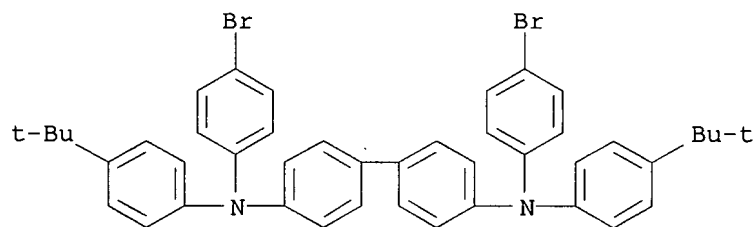
PAGE 2-A



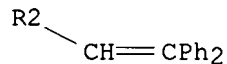
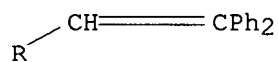
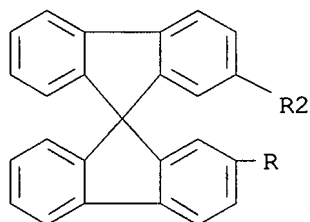
CM 3



CM 4



L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2'-bis(2,2-diphenylethenyl)- (9CI)  
 MF C53 H36



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene],

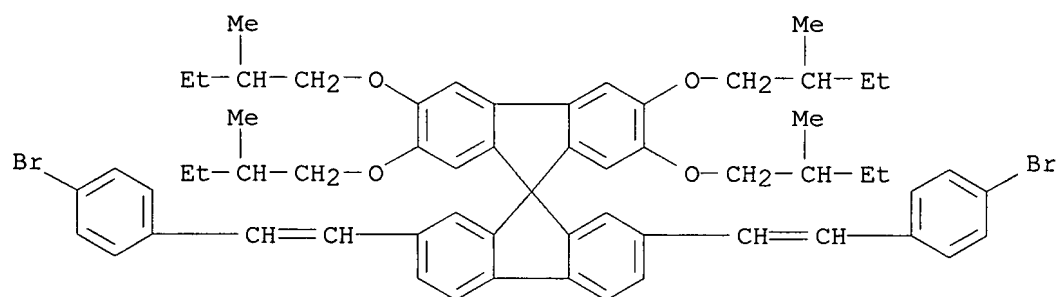


9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-[9-[3,4-bis(2-methylbutoxy)phenyl]-9-(2,5-dimethylphenyl)-9H-fluorene-2,7-diyl]bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane], 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane], block (9CI)

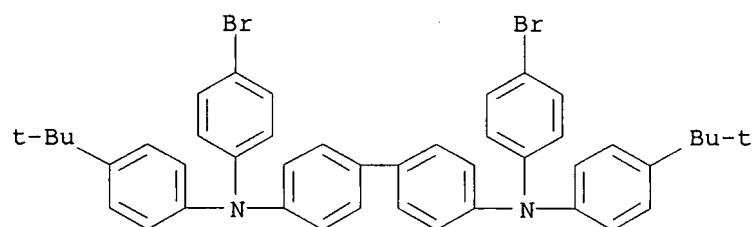
MF (C61 H66 Br2 O4 . C49 H64 B2 O6 . C49 H62 B2 O8 . C45 H54 Br2 O4 . C44 H42 Br2 N2 . C37 H40 Br2 O2)x

CI PMS

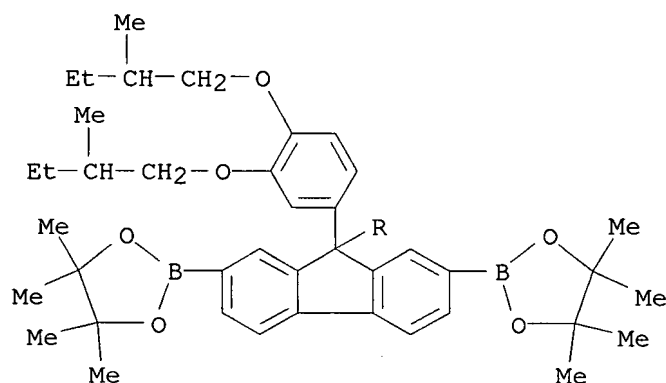
CM 1



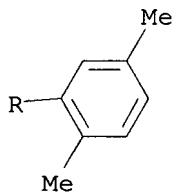
CM 2



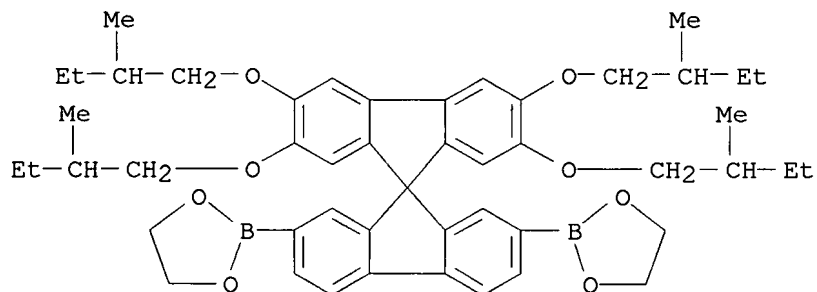
CM 3



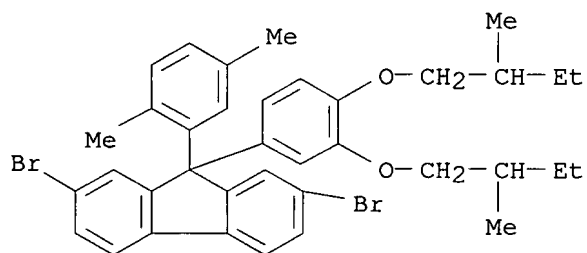
PAGE 1-A



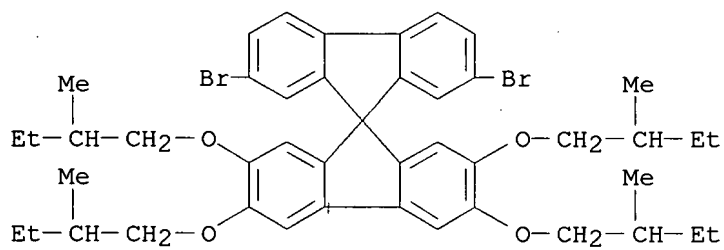
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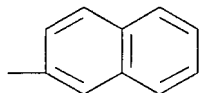
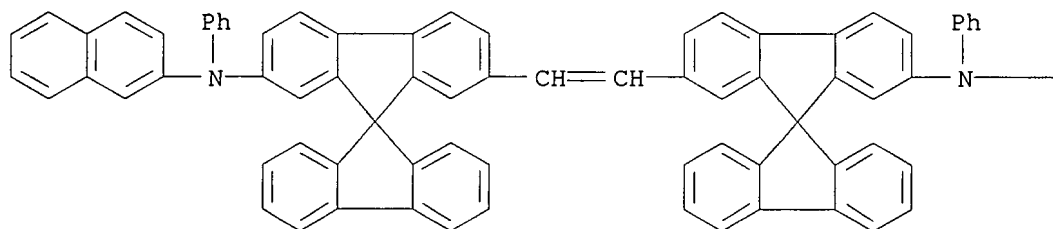
CM 5



CM 6

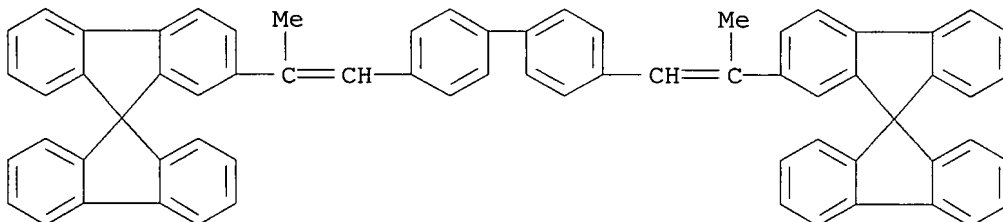


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
IN INDEX NAME NOT YET ASSIGNED  
MF C84 H54 N2



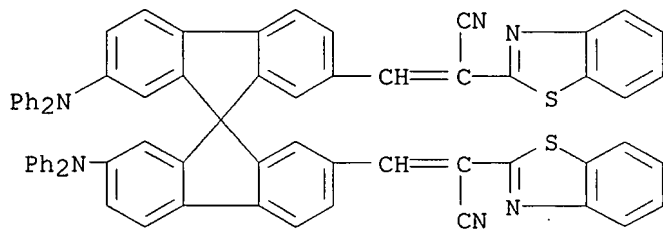
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2'--[[1,1'-biphenyl]-4,4'-diylbis(1-methyl-  
 2,1-ethenediyl)]bis- (9CI)  
 MF C68 H46



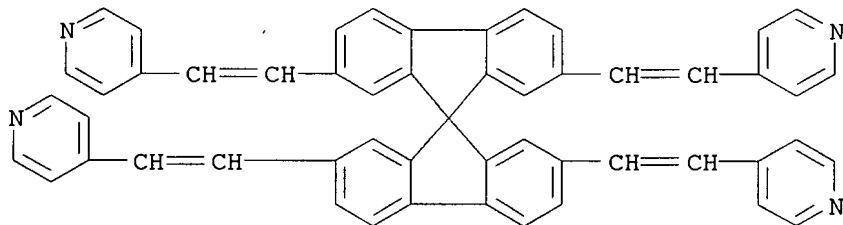
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 2-Benzothiazoleacetonitrile,  $\alpha,\alpha'$ -[[7,7'-bis(diphenylamino)-  
 9,9'-spirobi[9H-fluorene]-2,2'-diyl]dimethylidyne]bis- (9CI)  
 MF C69 H42 N6 S2



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

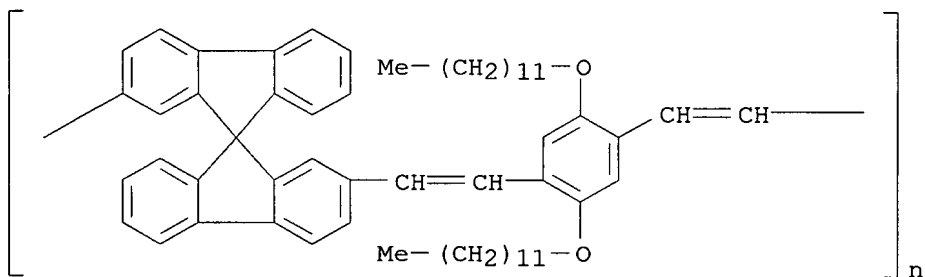
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Pyridine, 4,4',4'',4'''-(9,9'-spirobi[9H-fluorene]-2,2',7,7'-tetrayltetra-  
 2,1-ethenediyl)tetrakis- (9CI)  
 MF C53 H36 N4



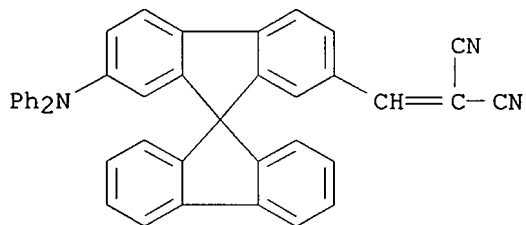
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Poly[9,9'-spirobi[9H-fluorene]-2,2'-diyl-1,2-ethenediyl[2,5-bis(dodecyloxy)-1,4-phenylene]-1,2-ethenediyl] (9CI)  
 MF (C59 H70 O2)<sub>n</sub>  
 CI PMS

\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*

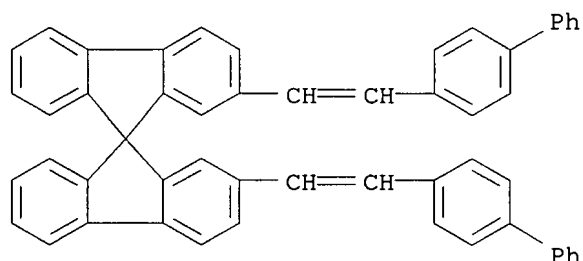


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Propanedinitrile, [[7-(diphenylamino)-9,9'-spirobi[9H-fluoren]-2-yl]methylene]- (9CI)  
 MF C41 H25 N3



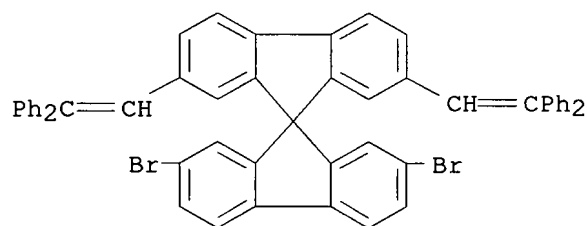
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2'-bis(2-[1,1'-biphenyl]-4-ylethenyl)- (9CI)  
 MF C53 H36



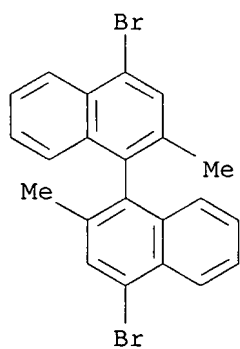
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,7-dibromo-2',7'-bis(2,2-diphenylethenyl)- (9CI)  
 MF C53 H34 Br2  
 CI COM

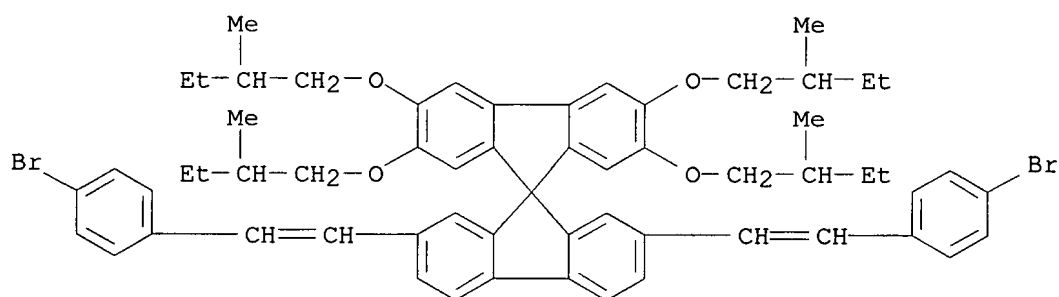


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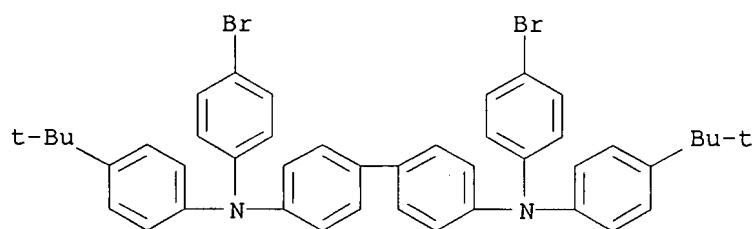
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 4,4'-dibromo-2,2'-dimethyl-1,1'-binaphthalene, 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)  
 MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C45 H54 Br2 O4 . C44 H42 Br2 N2 . C22 H16 Br2)x  
 CI PMS  
 CM 1



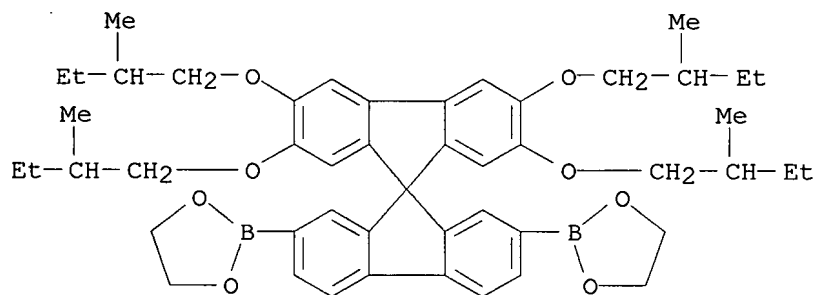
CM 2



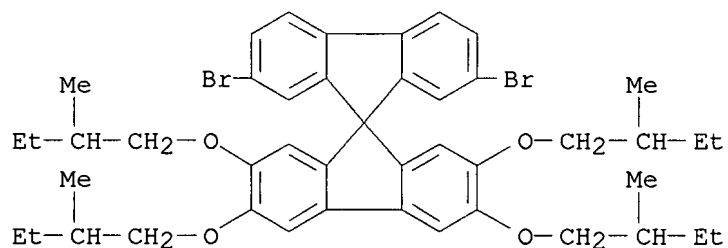
CM 3



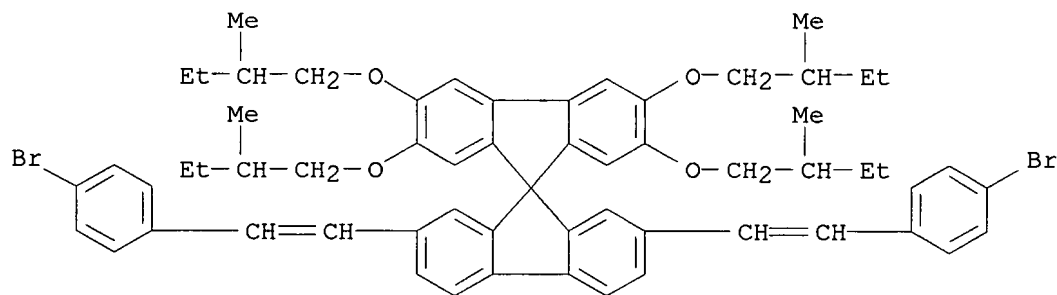
CM 4



CM 5



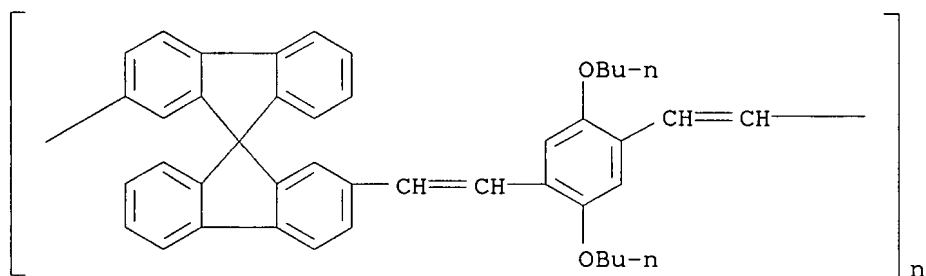
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)- (9CI)  
 MF C61 H66 Br2 O4  
 CI COM



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Poly[9,9'-spiropbi[9H-fluorene]-2,2'-diyl-1,2-ethenediyl (2,5-butoxy-1,4-phenylene)-1,2-ethenediyl] (9CI)  
 MF (C43 H38 O2)n  
 CI PMS

\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*



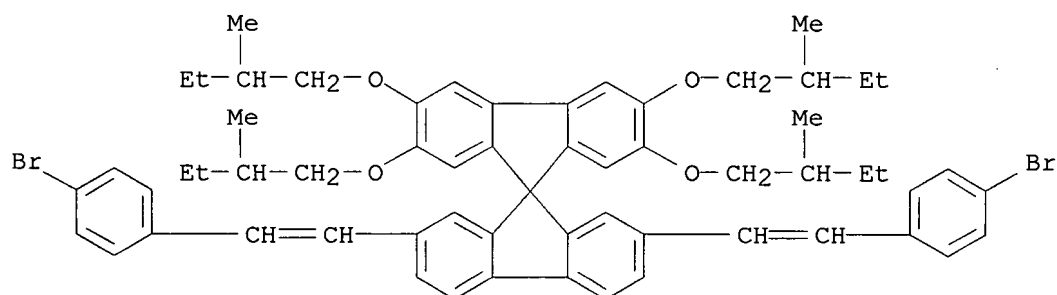
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN

IN [1,1'-Biphenyl]-4,4'-diamine, N4,N4'-bis(4-bromophenyl)-N4,N4'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 1,4-bis[2-(4-bromo-2,5-dimethoxyphenyl)ethenyl]-2-[(2-ethylhexyl)oxy]-5-methoxybenzene, 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 4,7-bis(5-bromo-2-thienyl)-2,1,3-benzothiadiazole, 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane]

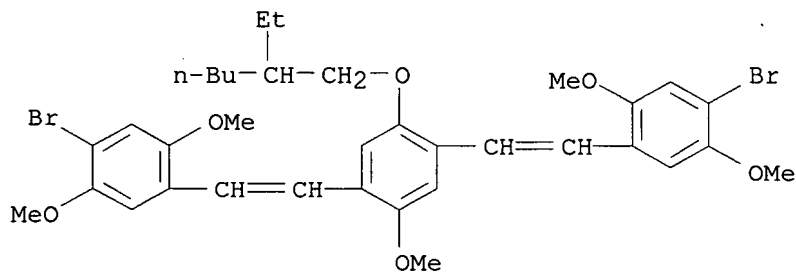
MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C45 H54 Br2 O4 . C44 H42 Br2 N2 . C35 H42 Br2 O6 . C14 H6 Br2 N2 S3)x

CI PMS

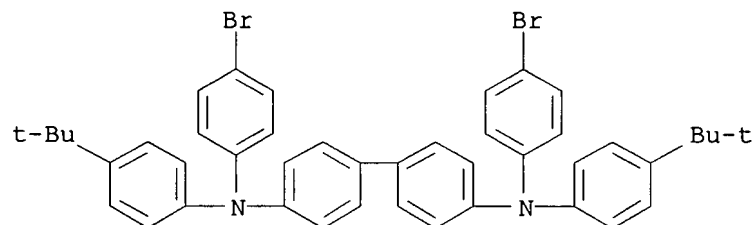
CM 1



CM 2

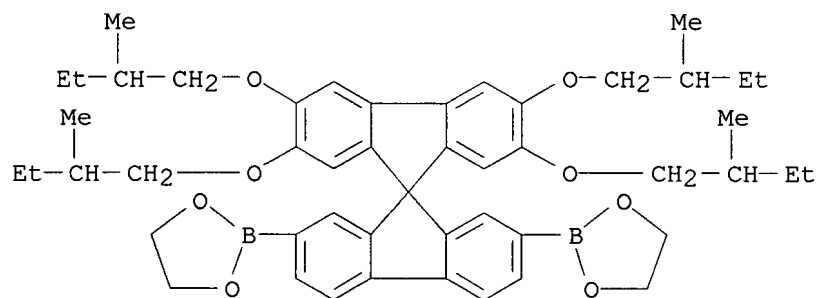


CM 3

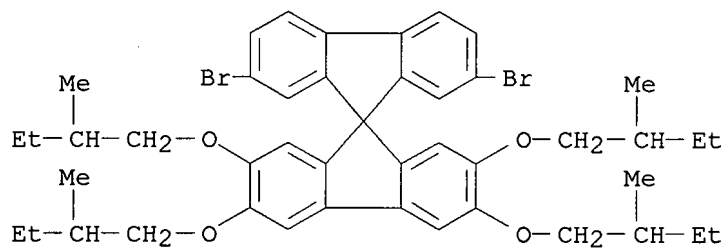


CM 4

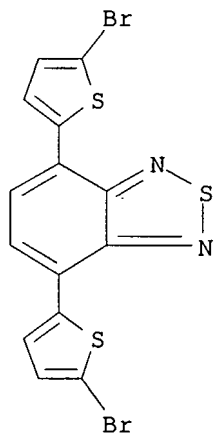




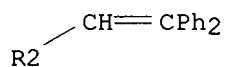
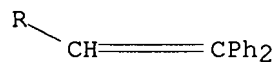
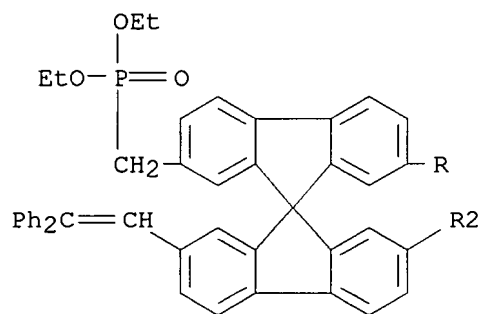
CM 5



CM 6



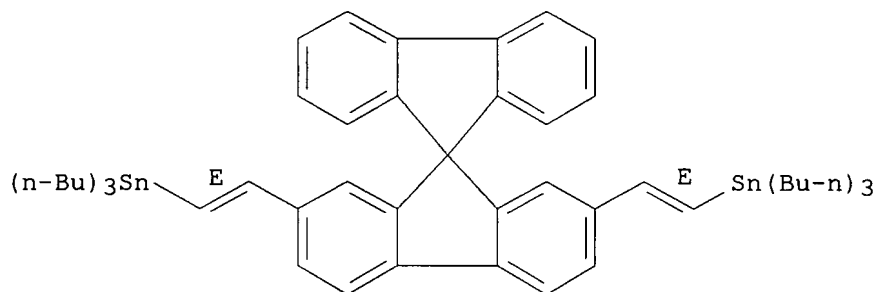
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Phosphonic acid, [[2',7,7'-tris(2,2-diphenylethenyl)-9,9'-spirobi[9H-fluoren]-2-yl)methyl]-, diethyl ester (9CI)  
 MF C72 H57 O3 P



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

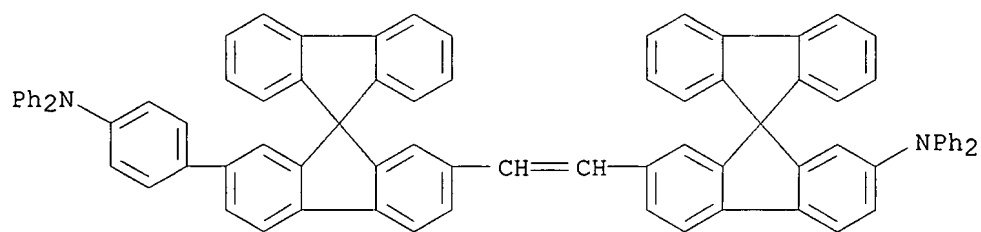
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Stannane, [9,9'-spirobi[9H-fluorene]-2,7-diyl-di-(1E)-2,1-ethenediyl]bis[tributyl- (9CI)  
 MF C53 H72 Sn2

Double bond geometry as shown.



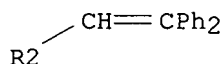
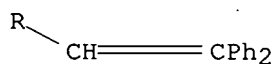
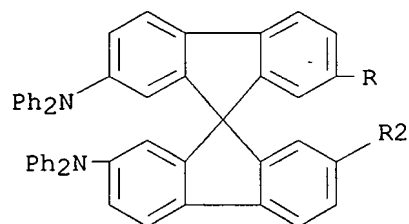
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN INDEX NAME NOT YET ASSIGNED  
 MF C82 H54 N2



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

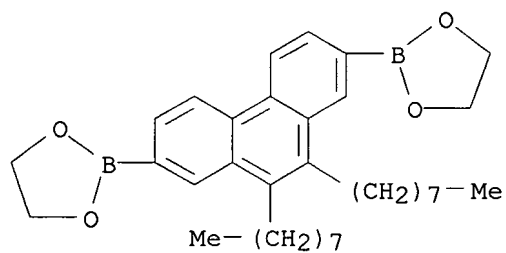
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene]-2,2'-diamine, 7,7'-bis(2,2-diphenylethenyl)-  
 N,N,N',N'-tetraphenyl- (9CI)  
 MF C77 H54 N2



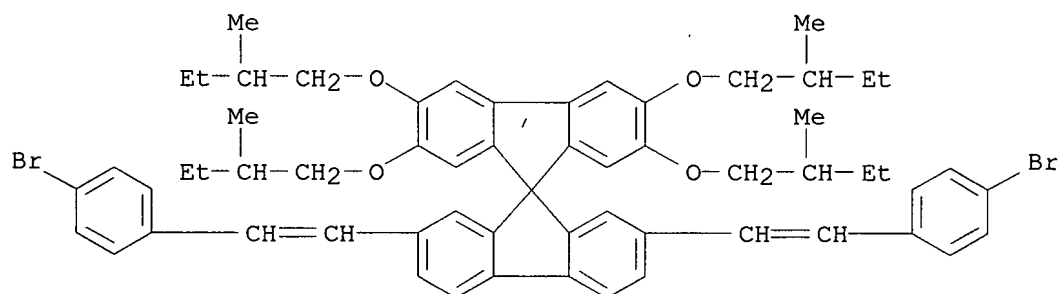
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-(9,10-dioctyl-2,7-phenanthrenediyl)bis[1,3,2-dioxaborolane] (9CI)  
 MF (C61 H66 Br2 O4 . C44 H42 Br2 N2 . C37 H40 Br2 O2 . C34 H48 B2 O4)x  
 CI PMS

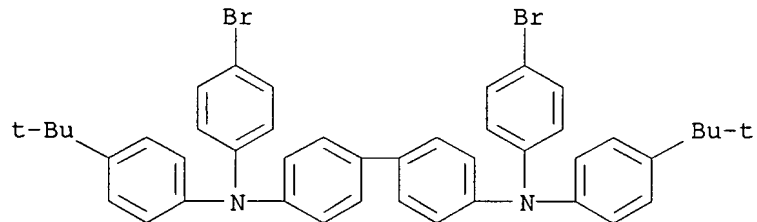
CM 1



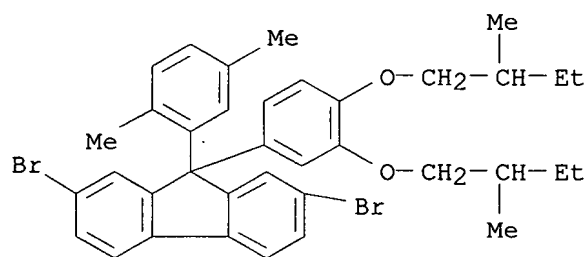
CM 2



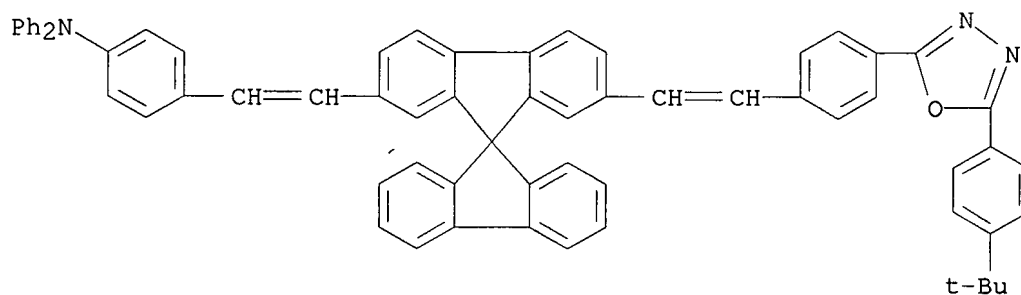
CM 3



CM 4

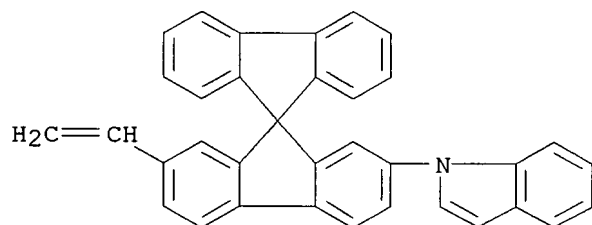


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Benzenamine, 4-[2-[7-[2-[4-[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]phenyl]ethenyl]-9,9'-spirobi[9H-fluoren]-2-yl]ethenyl]-N,N-diphenyl- (9CI)  
 MF C65 H49 N3 O



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

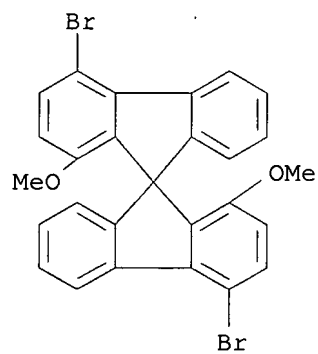
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 1H-Indole, 1-(7-ethenyl-9,9'-spirobi[9H-fluorene]-2-yl)- (9CI)  
 MF C35 H23 N  
 CI COM



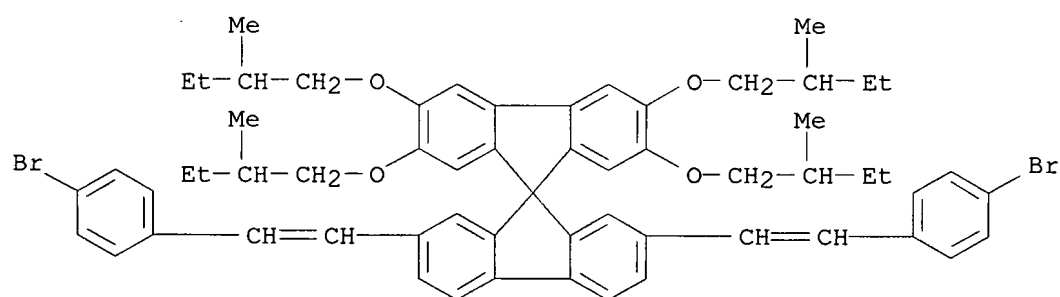
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 4,4'-dibromo-1,1'-dimethoxy-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)  
 MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C44 H42 Br2 N2 . C27 H18 Br2 O2)x  
 CI PMS

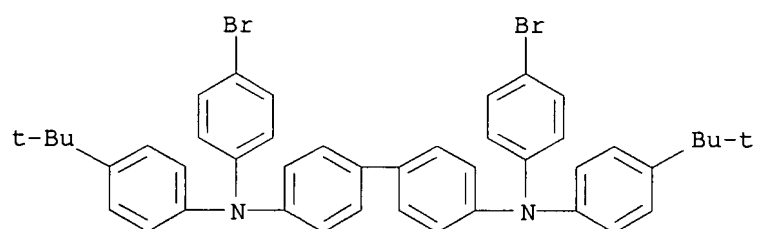
CM 1



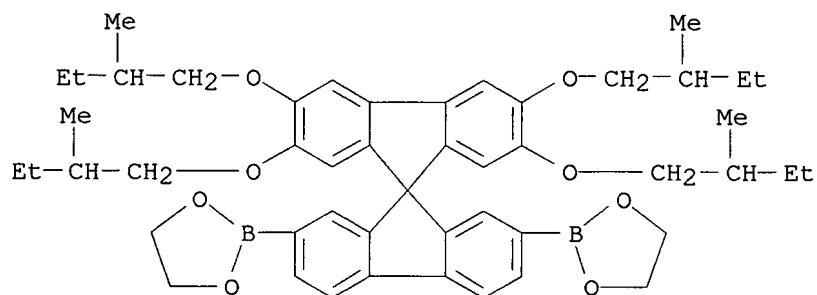
CM 2



CM 3

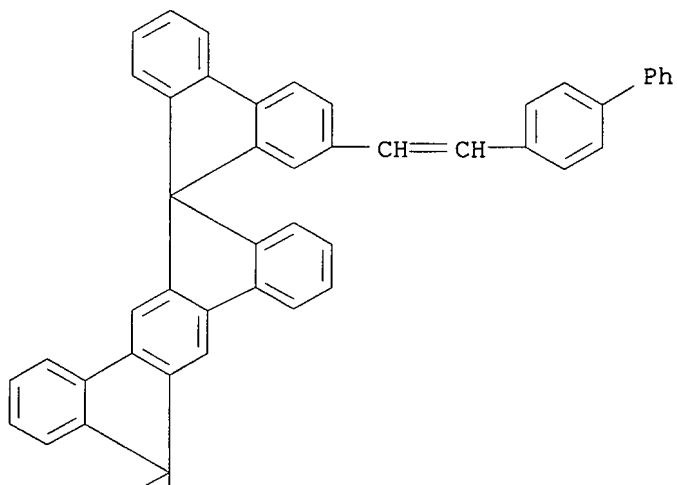


CM 4

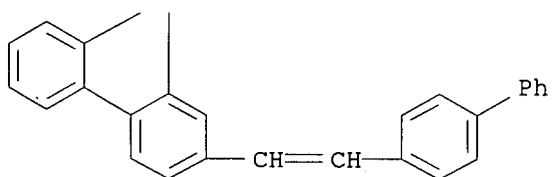


IN Dispiro[9H-fluorene-9,6'-(12'H)-indeno[1,2-b]fluorene-12',9'']-  
 MF [9H]fluorene], 2,2''-bis(2-[1,1'-biphenyl]-4-ylethenyl)- (9CI)  
 C72 H46

PAGE 1-A

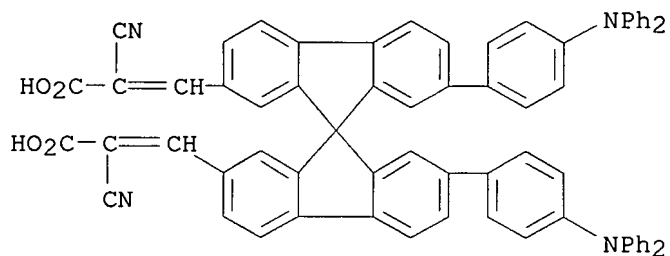


PAGE 2-A



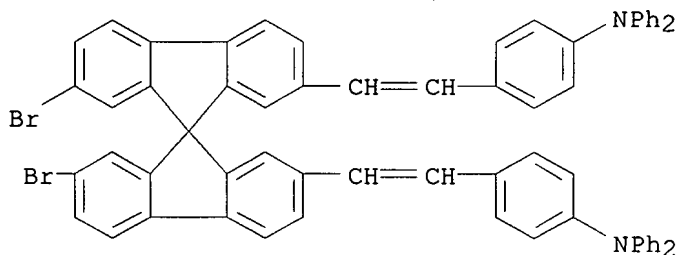
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 2-Propenoic acid, 3,3'-[7,7'-bis[4-(diphenylamino)phenyl]-9,9'-spirobi[9H-  
 MF fluorene]-2,2'-diyl]bis[2-cyano- (9CI)  
 C69 H44 N4 O4



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

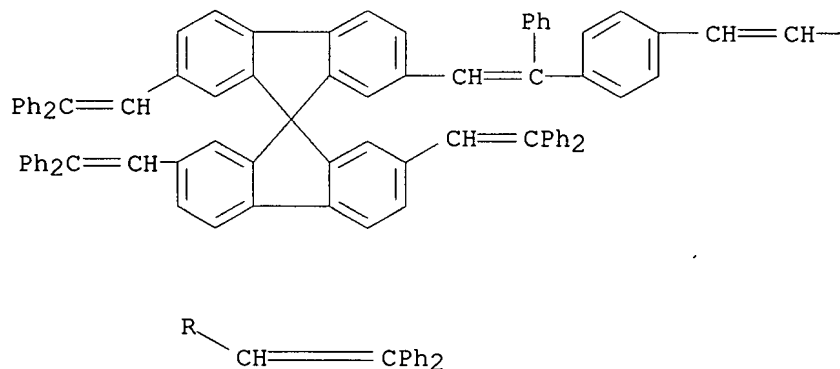
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Benzenamine, 4,4'-[(7,7'-dibromo-9,9'-spirobi[9H-fluorene]-2,2'-diyl)di-  
 2,1-ethenediyl]bis[N,N-diphenyl- (9CI)  
 MF C65 H44 Br2 N2



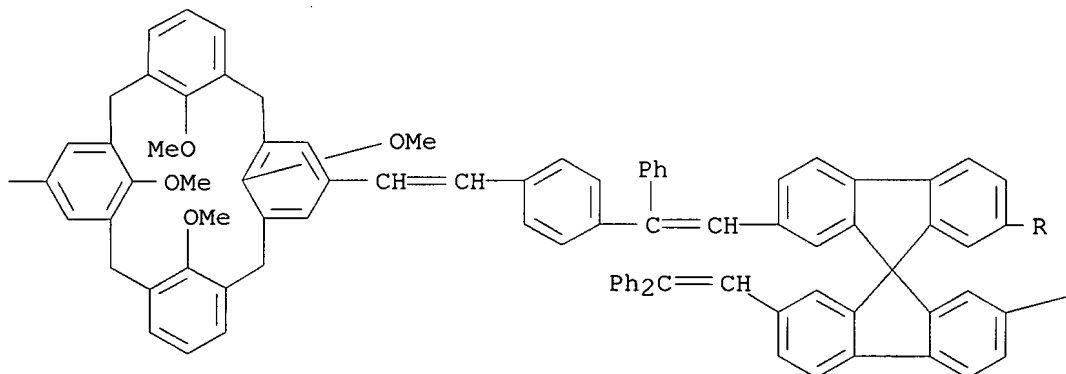
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2'-[(25,26,27,28-  
 tetramethoxypentacyclo[19.3.1.13,7.19,13.115,19]octacosa-  
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,17-diyl)bis[2,1-  
 ethenediyl-4,1-phenylene(2-phenyl-2,1-ethenediyl)]]bis[2',7,7'-tris(2,2-  
 diphenylethenyl)- (9CI)  
 MF C198 H144 O4

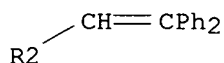
PAGE 1-A







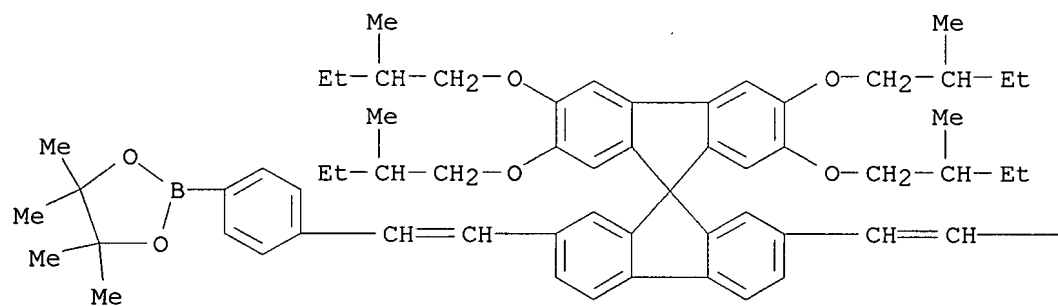
— R2



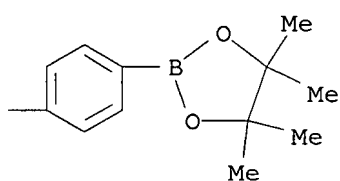
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Benzenamine, 4-bromo-N-(4-bromophenyl)-N-phenyl-, polymer with  
 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-  
 spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-  
 dimethylphenyl)-9H-fluorene, 2',7'-dibromo-2,3,6,7-tetrakis(2-  
 methylbutoxy)-9,9'-spirobi[9H-fluorene], 4-(1-methylpropyl)-N,N-bis[4-  
 (4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]benzenamine,  
 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-  
 diyl]bis[1,3,2-dioxaborolane] and 2,2'-[[2',3',6',7'-tetrakis(2-  
 methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis(2,1-ethenediyl-4,1-  
 phenylene)]bis[4,4,5,5-tetramethyl-1,3,2-dioxaborolane], block (9CI)  
 MF (C73 H90 Br2 O8 . C61 H66 Br2 O4 . C49 H62 Br2 O8 . C45 H54 Br2 O4 . C37 H40  
 Br2 O2 . C34 H45 Br2 N O4 . C18 H13 Br2 N)x  
 CI PMS  
 CM 1

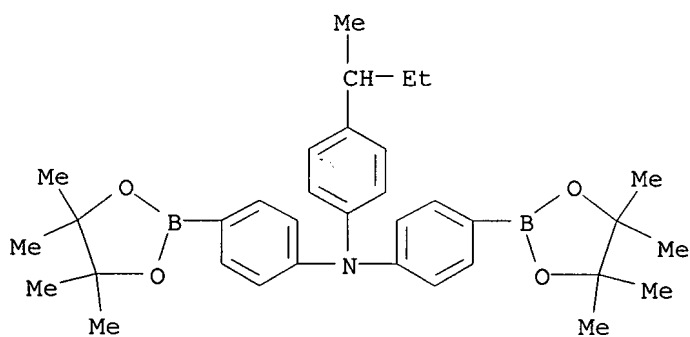
PAGE 1-A



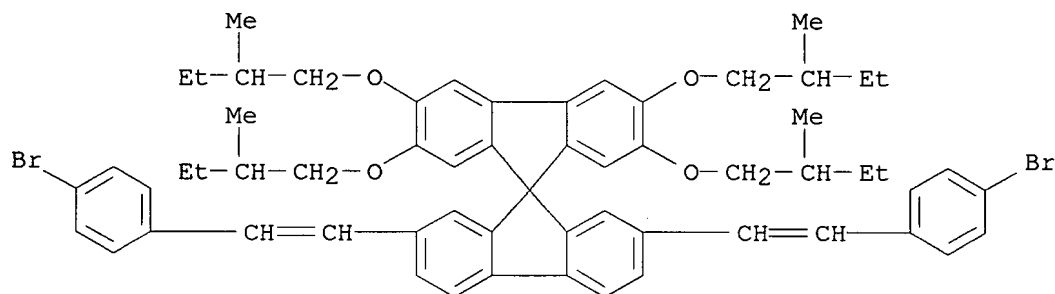
PAGE 1-B



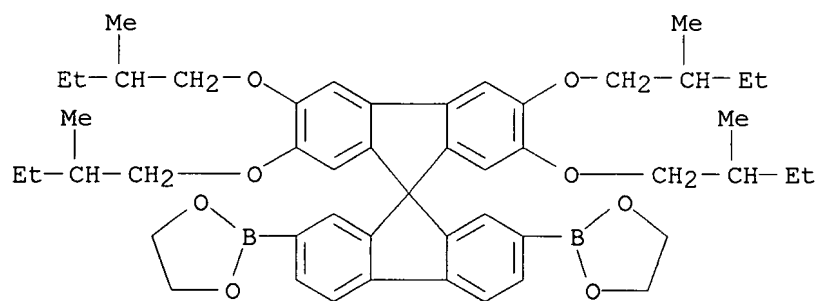
CM 2



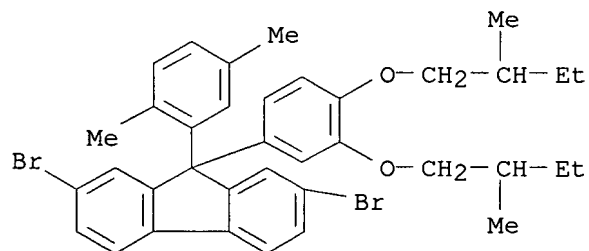
CM 3



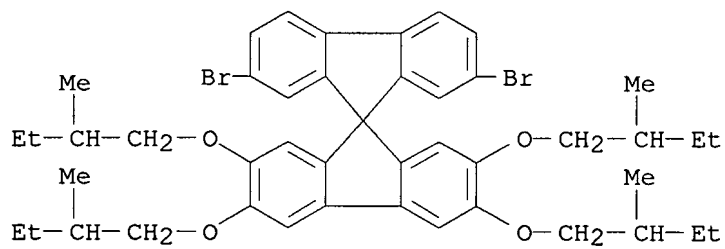
CM 4



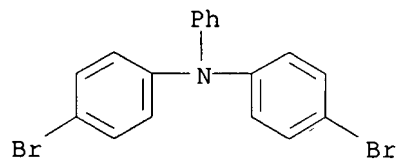
CM 5



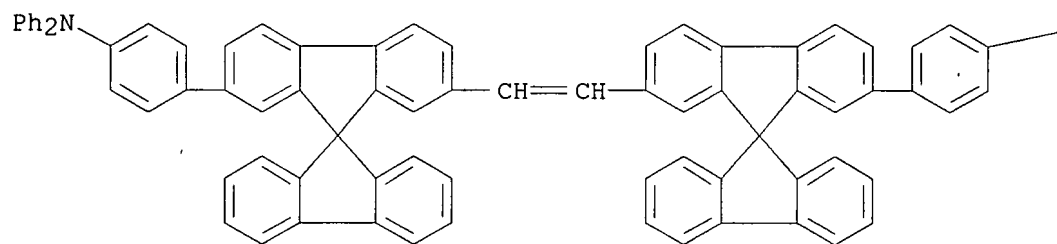
CM 6



CM 7



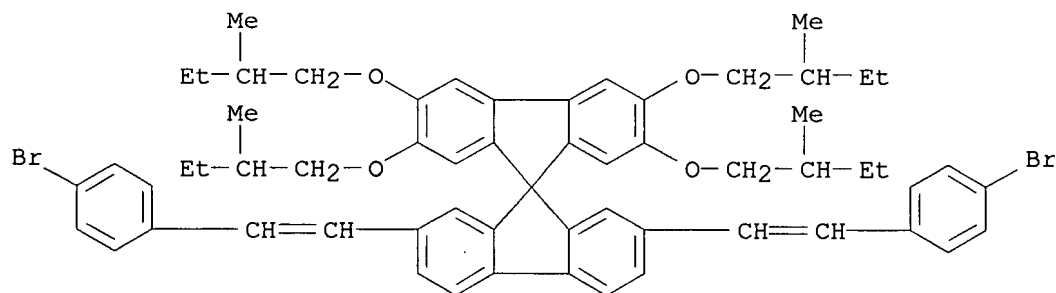
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN INDEX NAME NOT YET ASSIGNED  
 MF C88 H58 N2

—NPh<sub>2</sub>

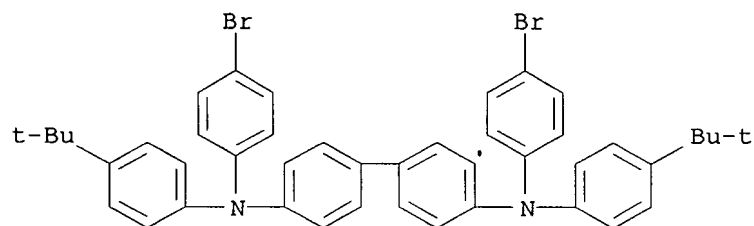
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene (9CI)  
 MF (C61 H66 Br2 O4 . C44 H42 Br2 N2 . C37 H40 Br2 O2)x  
 CI PMS

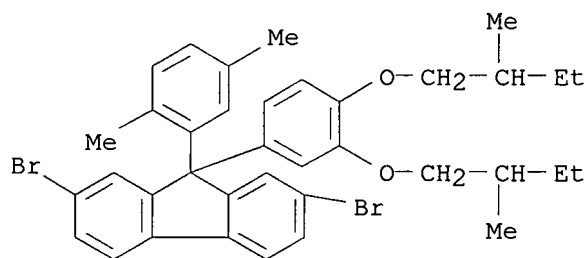
CM 1



CM 2

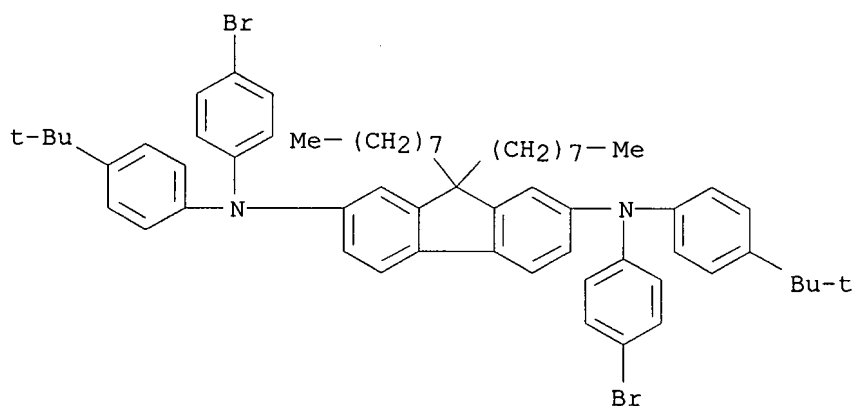


CM 3

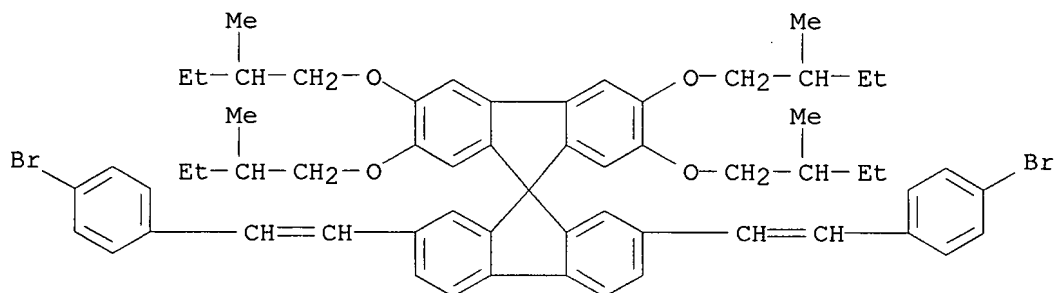


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9H-Fluorene-2,7-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-9,9-dioctyl-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)  
 MF (C61 H74 Br2 N2 . C61 H66 Br2 O4 . C49 H62 B2 O8 . C37 H40 Br2 O2)x  
 CI PMS

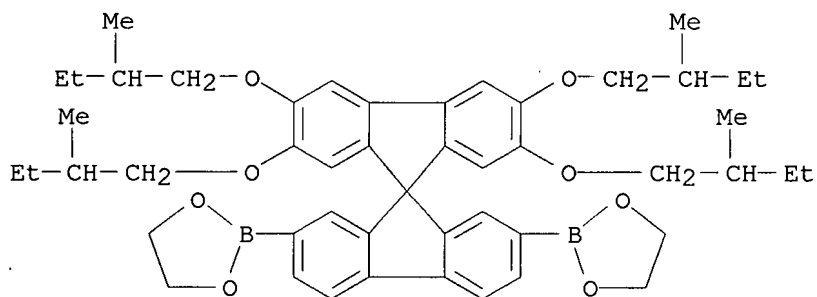
CM 1



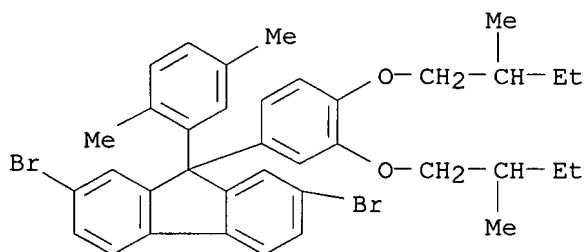
CM 2



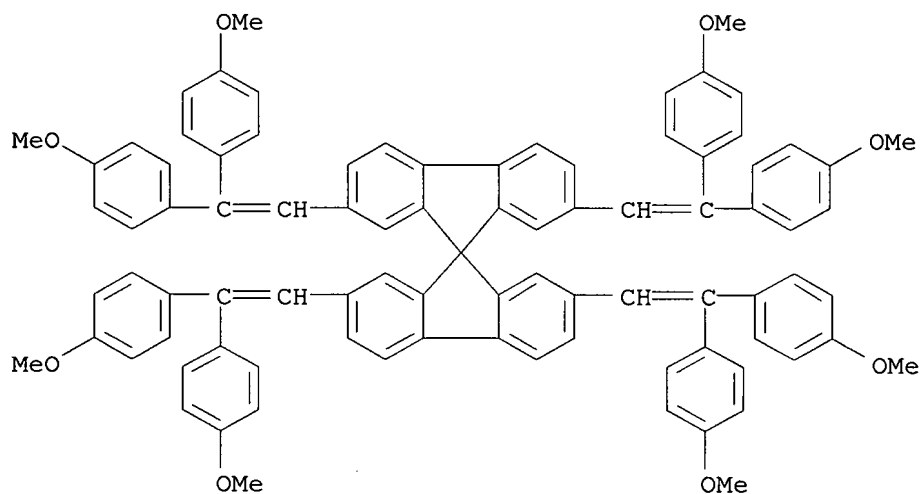
CM 3



CM 4



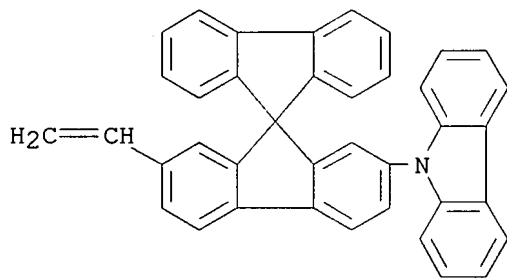
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis[2,2-bis(4-methoxyphenyl)ethenyl]- (9CI)  
 MF C89 H72 O8



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9H-Carbazole, 9-(7-ethenyl-9,9'-spirobi[9H-fluorene]-2-yl)- (9CI)  
 MF C39 H25 N

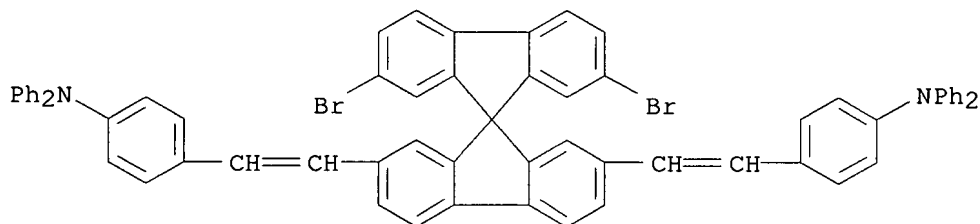
CI COM



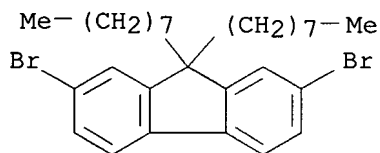
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Benzenamine, 4,4'-[(2',7'-dibromo-9,9'-spirobi[9H-fluorene]-2,7-diyl)di-  
 2,1-ethenediyl]bis[N,N-diphenyl-, polymer with 2,7-dibromo-9,9-dioctyl-9H-  
 fluorene and 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-  
 tetramethyl-1,3,2-dioxaborolane] (9CI)  
 MF (C65 H44 Br2 N2 . C41 H64 B2 O4 . C29 H40 Br2)x  
 CI PMS

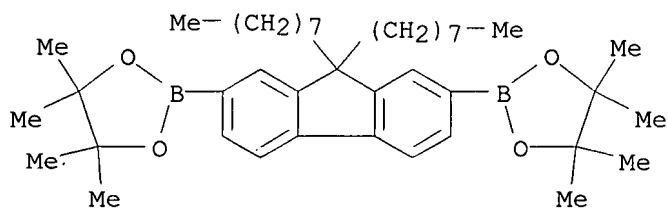
CM 1



CM 2



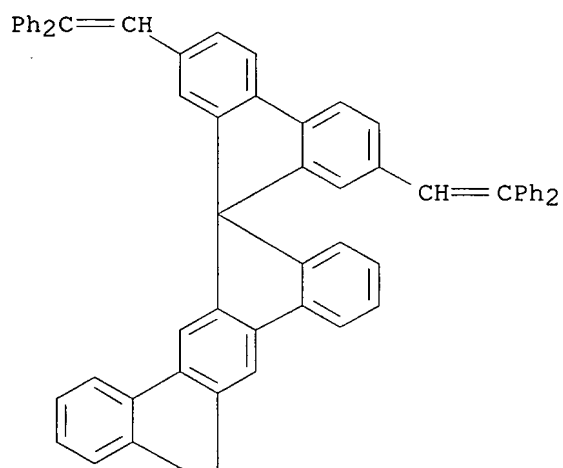
CM 3



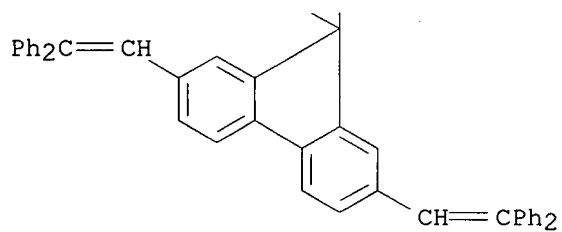
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Dispiro[9H-fluorene-9,6'(12'H)-indeno[1,2-b]fluorene-12',9''-  
 [9H]fluorene], 2,2'',7,7''-tetrakis(2,2-diphenylethenyl)- (9CI)  
 MF C100 H66

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PAGE 2-A

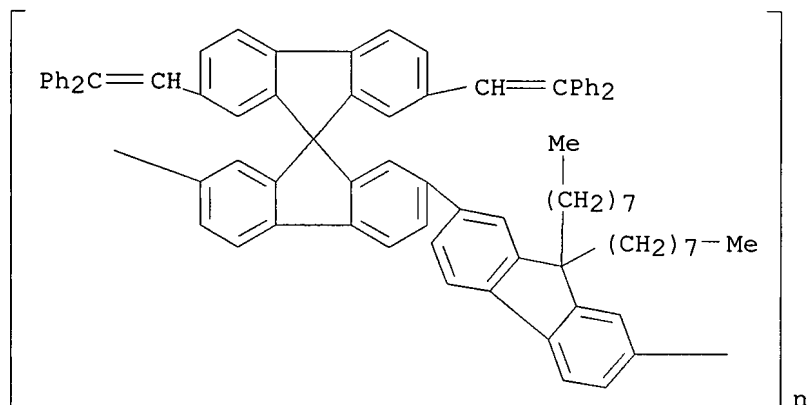


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*



L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Poly[[2',7'-bis(2,2-diphenylethenyl)-9,9'-spirobi[9H-fluorene]-2,7-diyl](9,9-dioctyl-9H-fluorene-2,7-diyl)] (9CI)  
 MF (C82 H74)n  
 CI PMS

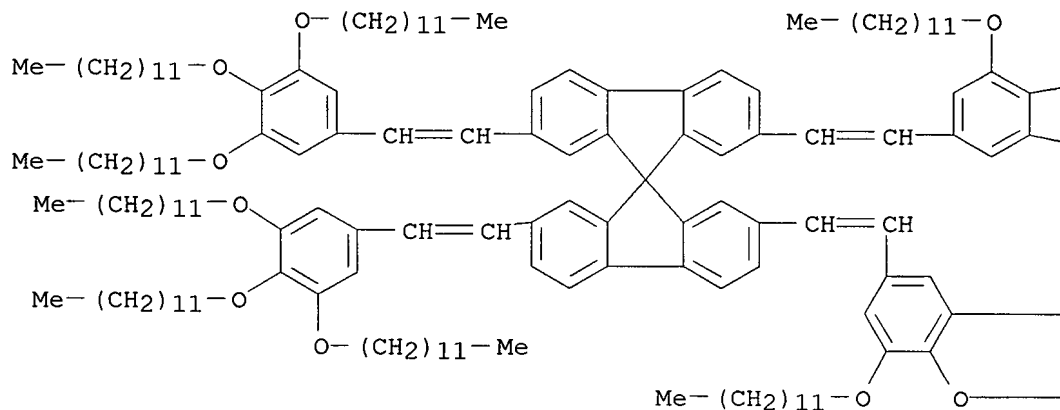
\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*

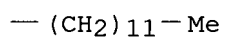
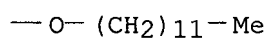
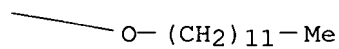
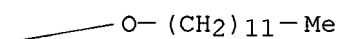


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis[2-[3,4,5-tris(dodecyloxy)phenyl]ethenyl]- (9CI)  
 MF C201 H328 O12

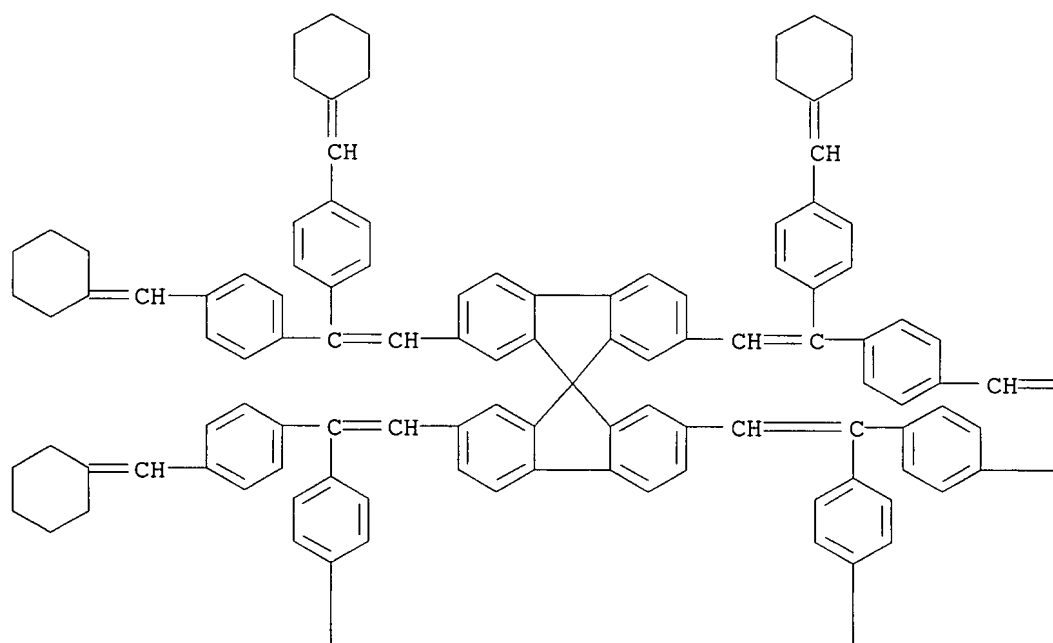
PAGE 1-A

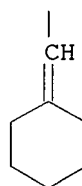
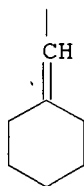
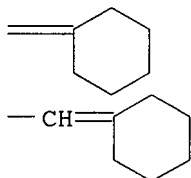




\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

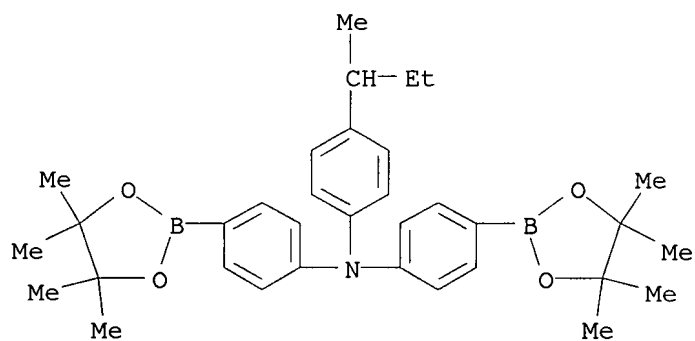
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis[2,2-bis[4-(cyclohexylidenemethyl)phenyl]ethenyl]- (9CI)  
 MF C137 H136



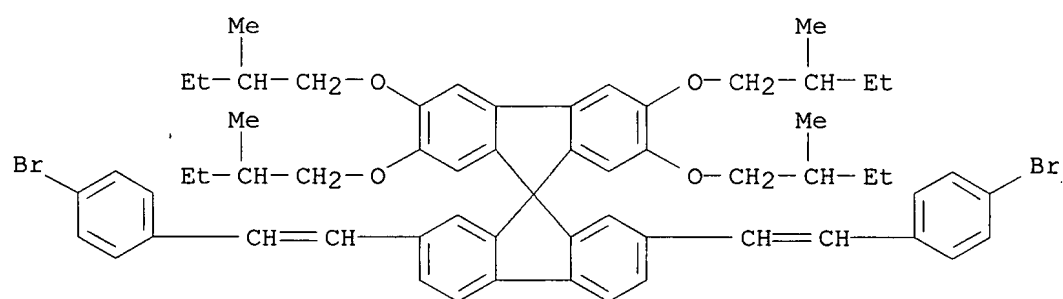


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

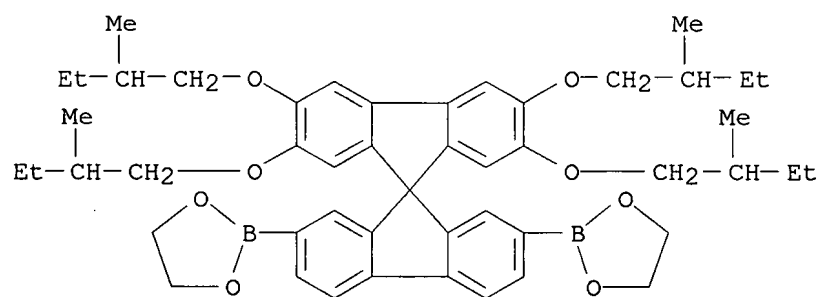
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Benzenamine, 4-bromo-N-(4-bromophenyl)-N-phenyl-, polymer with  
 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-  
 spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-  
 dimethylphenyl)-9H-fluorene, 2',7'-dibromo-2,3,6,7-tetrakis(2-  
 methylbutoxy)-9,9'-spirobi[9H-fluorene], 4-(1-methylpropyl)-N,N-bis[4-  
 (4,4,5,5-tetramethyl-1,3,2-dioxaborolan-2-yl)phenyl]benzenamine and  
 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-  
 diyl]bis[1,3,2-dioxaborolane], block (9CI)  
 MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C45 H54 Br2 O4 . C37 H40 Br2 O2 . C34  
 H45 B2 N O4 . C18 H13 Br2 N)x  
 CI PMS  
 CM 1



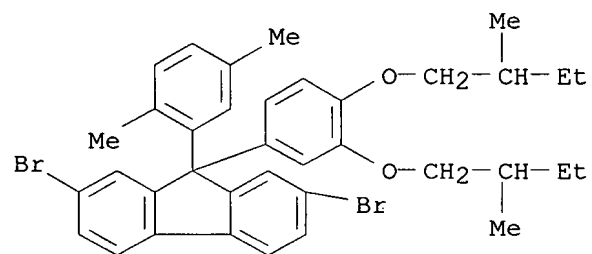
CM 2



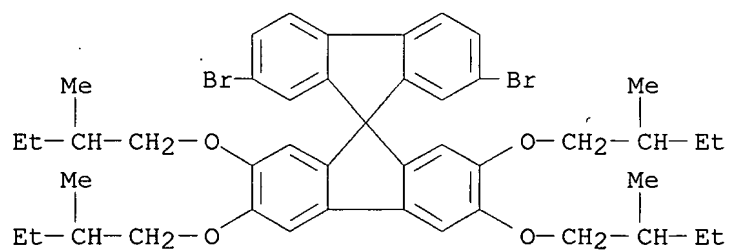
CM 3



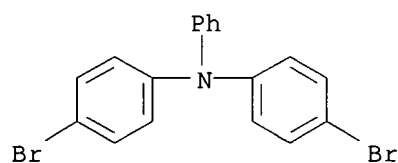
CM 4



CM 5

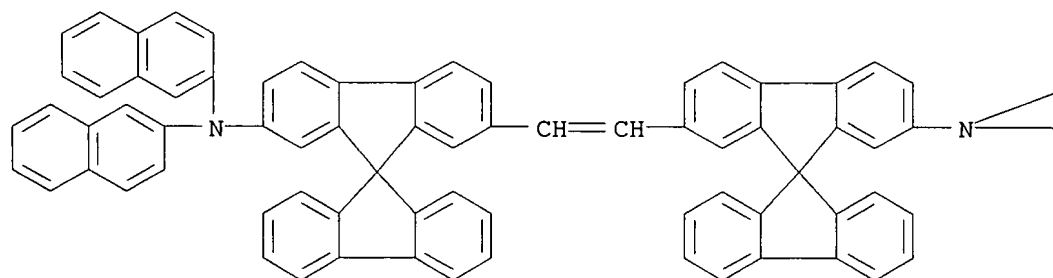


CM 6

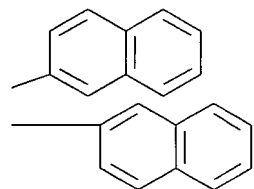


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN INDEX NAME NOT YET ASSIGNED  
 MF C92 H58 N2

PAGE 1-A

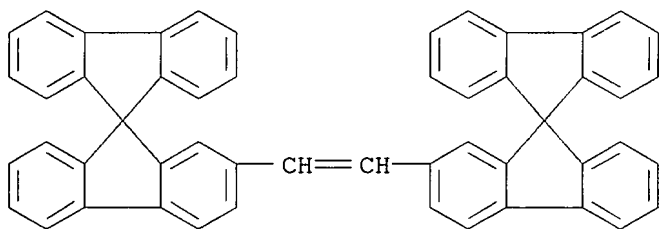


PAGE 1-B



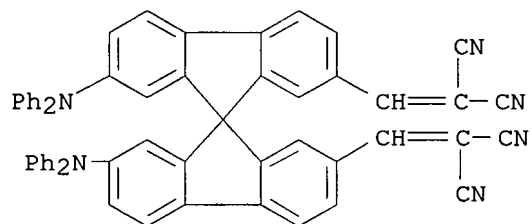
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2'-(1,2-ethenediyl)bis- (9CI)  
 MF C52 H32



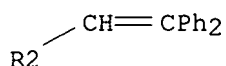
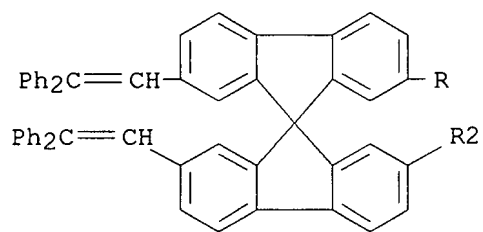
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Propanedinitrile, 2,2'-[[7,7'-bis(diphenylamino)-9,9'-spirobi[9H-fluorene]-  
 2,2'-diyl]dimethyldiyne]bis- (9CI)  
 MF C57 H34 N6



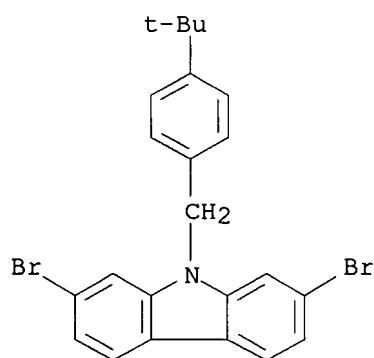
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis(2,2-diphenylethenyl)-  
 MF C81 H56

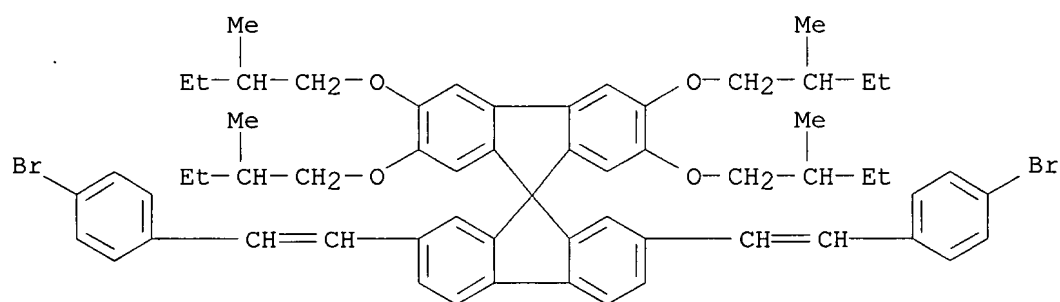


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

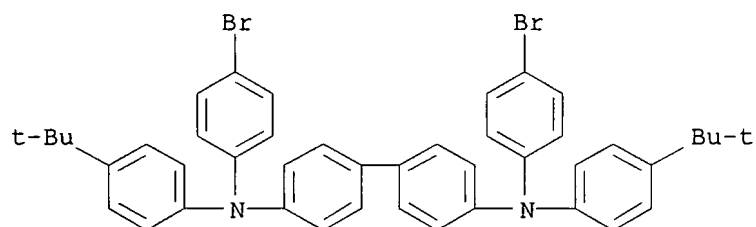
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,7-dibromo-9-[[4-(1,1-dimethylethyl)phenyl]methyl]-9H-carbazole and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)  
 MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C44 H42 Br2 N2 . C37 H40 Br2 O2 . C23 H21 Br2 N)x  
 CI PMS  
 CM 1



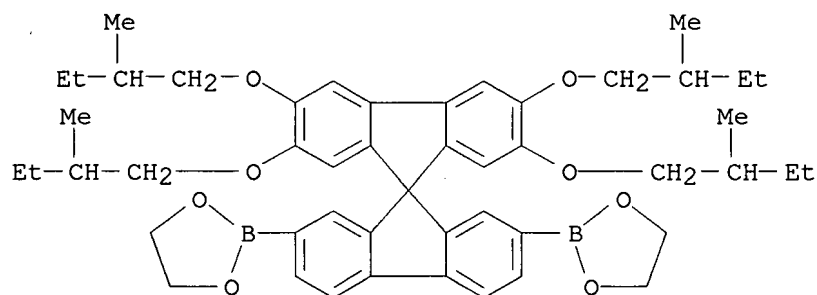
CM 2



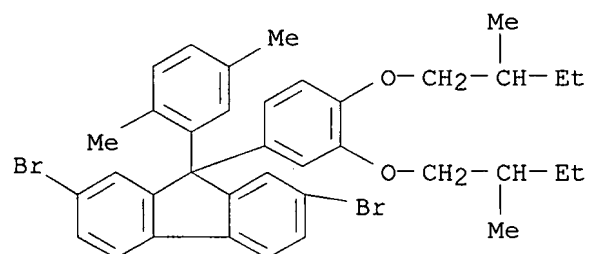
CM 3



CM 4



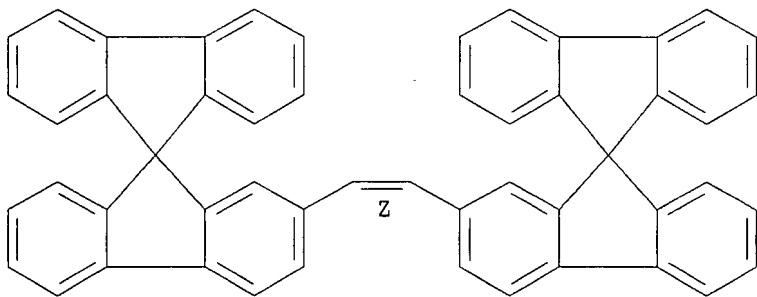
CM 5



L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2''-(1Z)-1,2-ethenediylbis- (9CI)  
 MF C52 H32

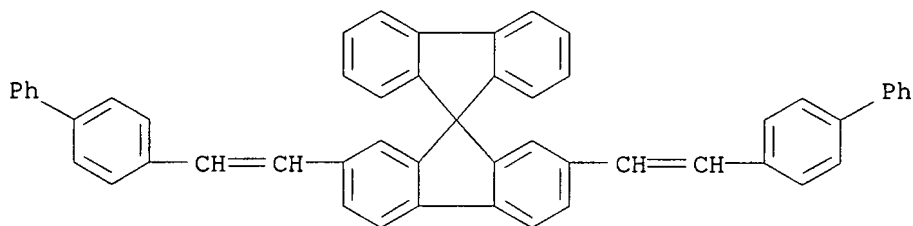


Double bond geometry as shown.



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,7-bis(2-[1,1'-biphenyl]-4-ylethenyl)- (9CI)  
 MF C53 H36

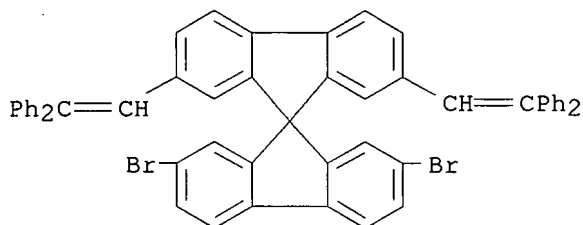


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

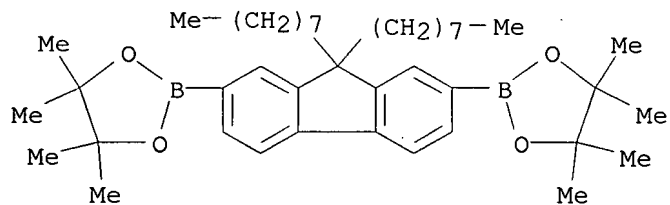
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 1,3,2-Dioxaborolane, 2,2'-(9,9-dioctyl-9H-fluorene-2,7-diyl)bis[4,4,5,5-tetramethyl-, polymer with 2,7-dibromo-2',7'-bis(2,2-diphenylethenyl)-9,9'-spiropbi[9H-fluorene] (9CI)  
 MF (C53 H34 Br2 . C41 H64 B2 O4)x  
 CI PMS

\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*

CM 1



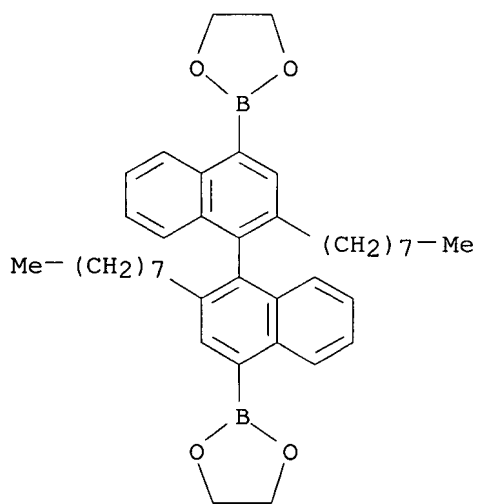
CM 2



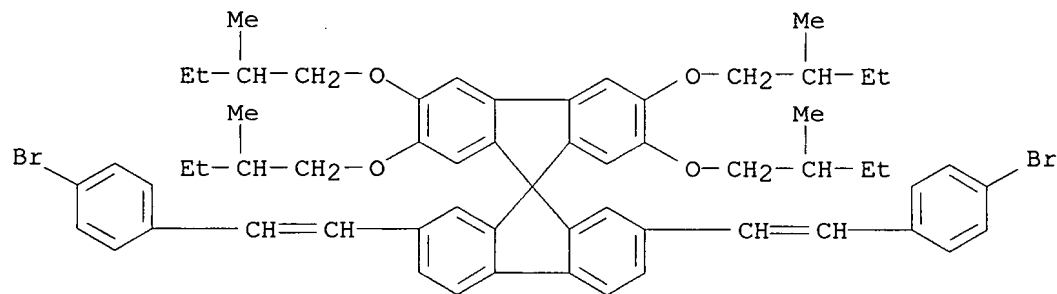
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-(2,2'-dioctyl[1,1'-binaphthalene]-4,4'-diyl)bis[1,3,2-dioxaborolane] (9CI)  
 MF (C61 H66 Br2 O4 . C45 H54 Br2 O4 . C44 H42 Br2 N2 . C40 H52 B2 O4)x  
 CI PMS

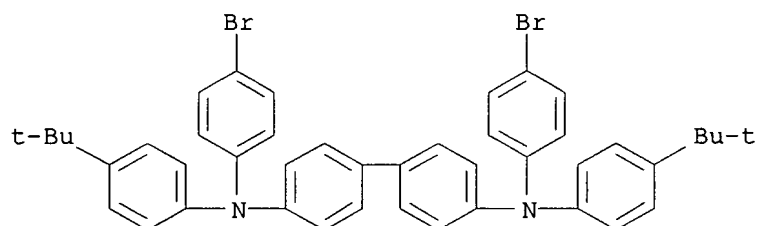
CM 1



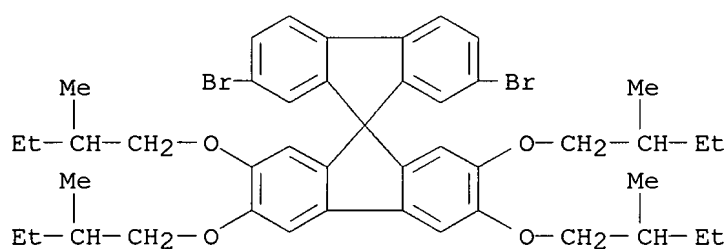
CM 2



CM 3

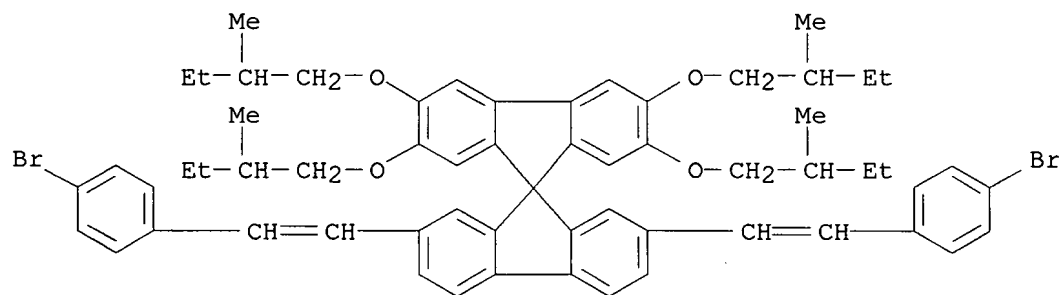


CM 4

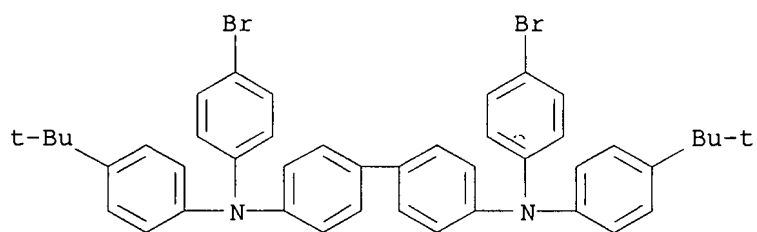


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N4,N4'-bis(4-bromophenyl)-N4,N4'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2,7-bis[2-(4-bromophenyl)ethenyl]-2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 2,7-dibromo-2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane]  
 MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C45 H54 Br2 O4 . C44 H42 Br2 N2)x  
 CI PMS

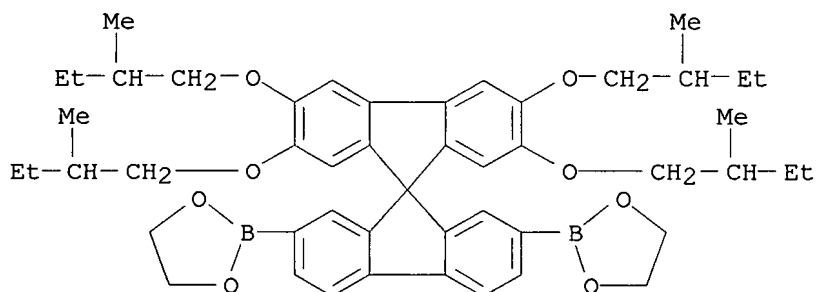
CM 1



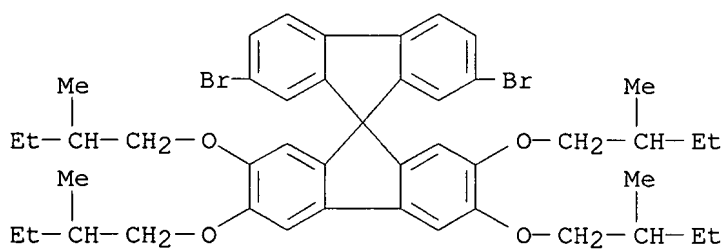
CM 2



CM 3

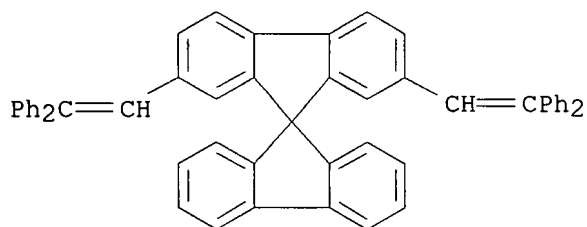


CM 4



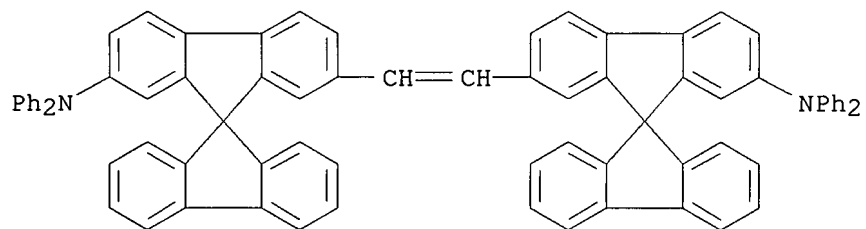
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,7-bis(2,2-diphenylethenyl)- (9CI)  
 MF C53 H36



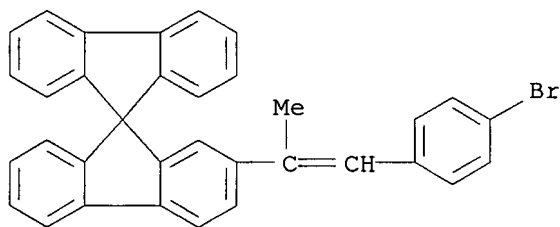
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN INDEX NAME NOT YET ASSIGNED  
 MF C76 H50 N2



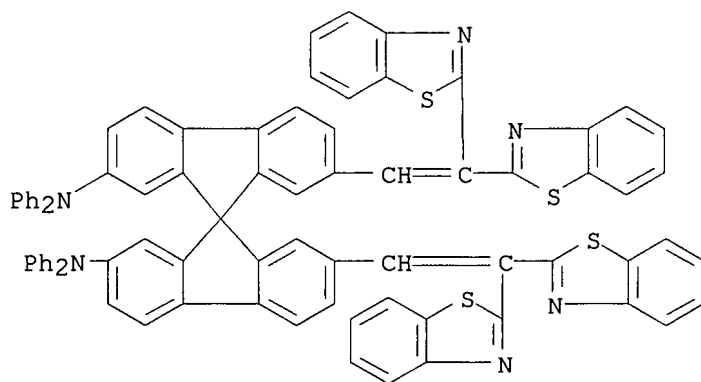
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2-[2-(4-bromophenyl)-1-methylethenyl]- (9CI)  
 MF C34 H23 Br



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

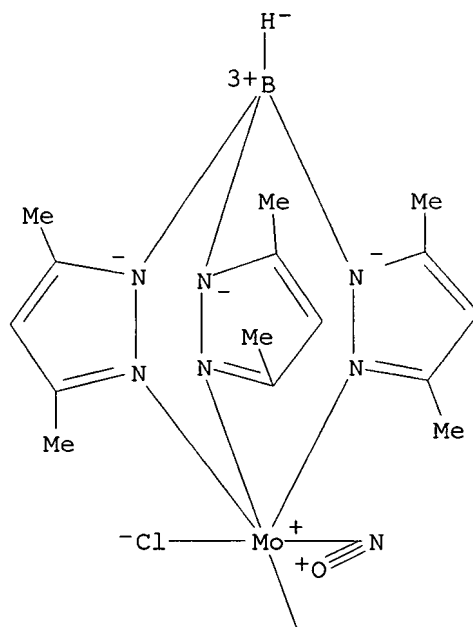
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene]-2,2'-diamine, 7,7'-bis[2,2-bis(2-benzothiazolyl)ethenyl]-N,N,N',N'-tetraphenyl- (9CI)  
 MF C81 H50 N6 S4

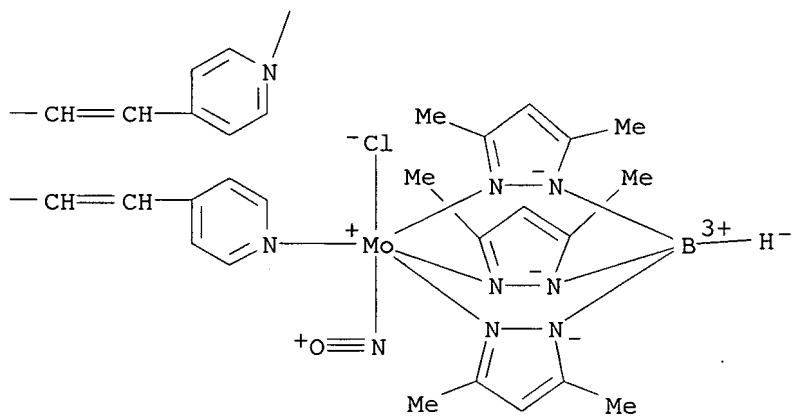
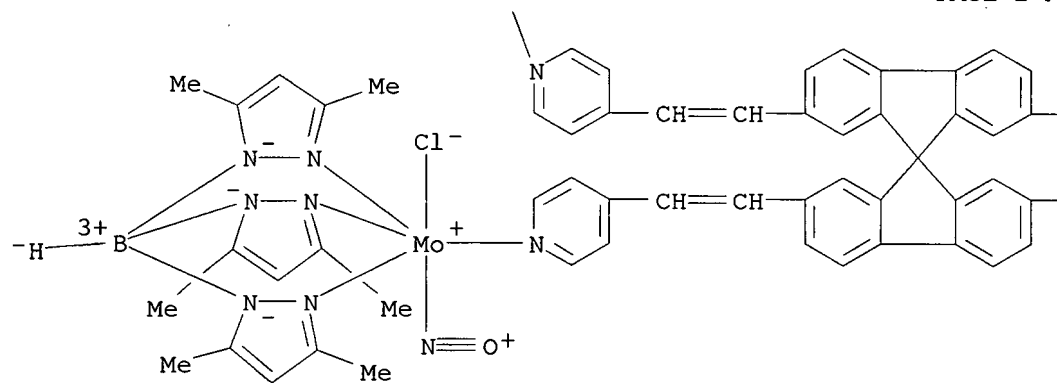
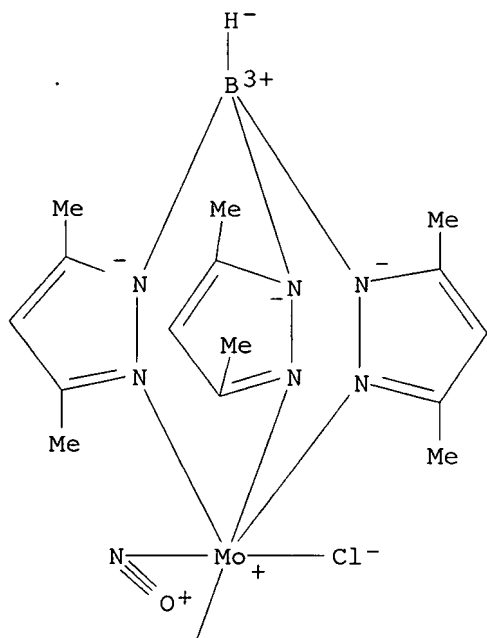


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Molybdenum, tetrachlorotetranitrosyl[μ4-[4,4',4'',4'''-(9,9'-spirobi[9H-fluorene]-2,2',7,7'-tetrayltetra-2,1-ethenediyl)tetrakis(pyridine-κN)]]tetrakis[tris(3,5-dimethyl-1H-pyrazolato-κN1)hydroborato(1-)-κN2,κN2',κN2'']]tetra- (9CI)  
 MF C113 H124 B4 Cl4 Mo4 N32 O4  
 CI CCS

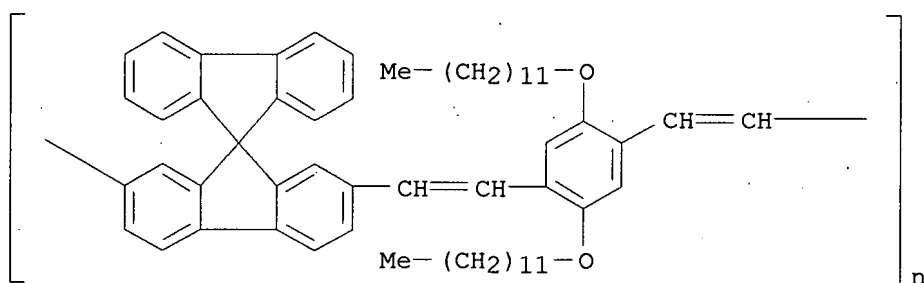
PAGE 1-A



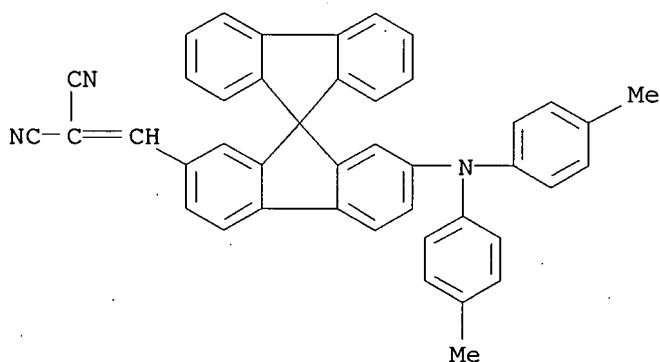


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Poly[9,9'-spirobi[9H-fluorene]-2,7-diyl-1,2-ethenediyl[2,5-bis(dodecyloxy)-1,4-phenylene]-1,2-ethenediyl] (9CI)  
 MF (C59 H70 O2)<sub>n</sub>  
 CI PMS

\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*



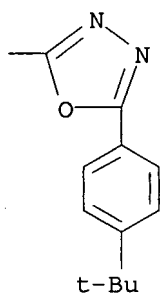
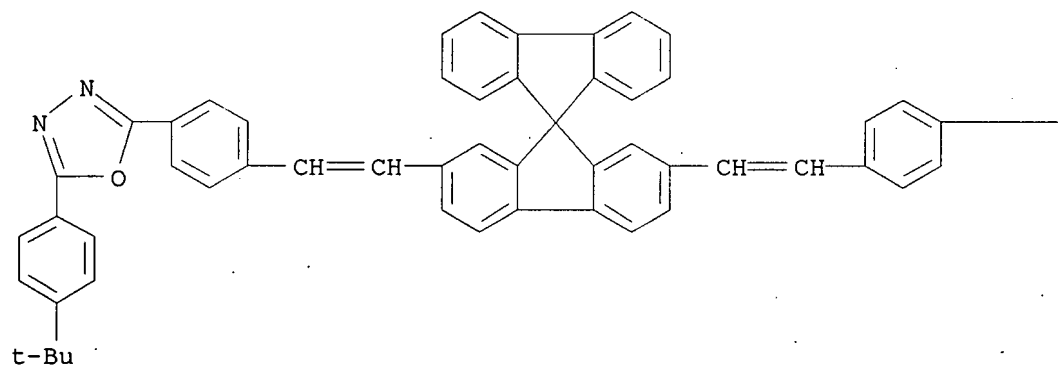
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Propanedinitrile, [[7-[bis(4-methylphenyl)amino]-9,9'-spirobi[9H-fluorene]-2-yl]methylene]- (9CI)  
 MF C43 H29 N3



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

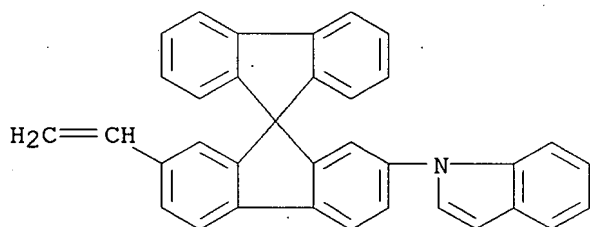
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 1,3,4-Oxadiazole, 2,2'-[9,9'-spirobi[9H-fluorene]-2,7-diylbis(2,1-ethenediyl-4,1-phenylene)]bis[5-[4-(1,1-dimethylethyl)phenyl]- (9CI)  
 MF C65 H52 N4 O2





\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 1H-Indole, 1-(7-ethenyl-9,9'-spirobi[9H-fluorene]-2-yl)-, homopolymer (9CI)  
 MF (C35 H23 N)x  
 CI PMS  
 CM 1



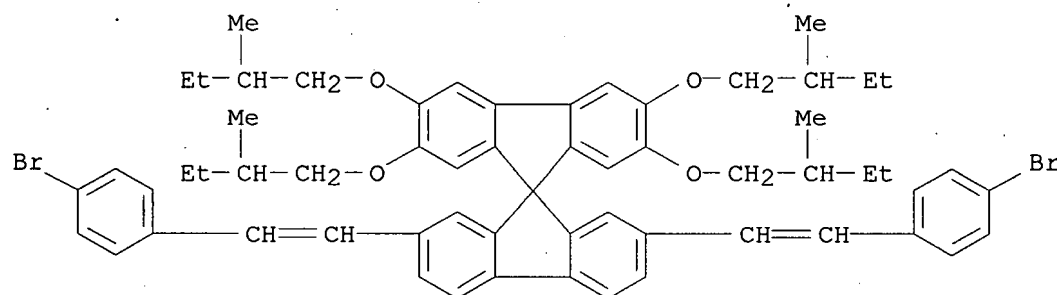
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene],

9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene, 2,2'-dibromo-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)

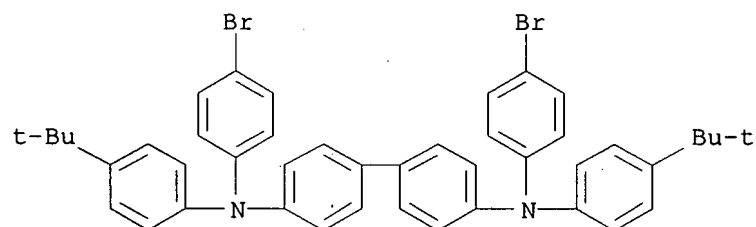
MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C44 H42 Br2 N2 . C37 H40 Br2 O2 . C25 H14 Br2)x

CI PMS

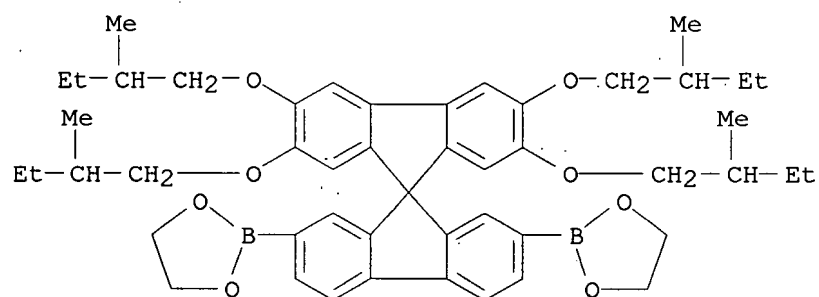
CM 1



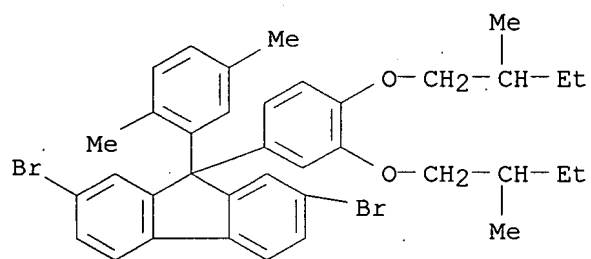
CM 2



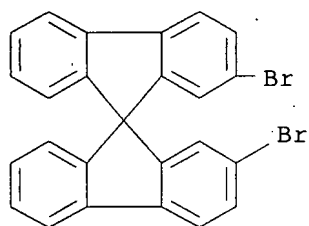
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CM 4

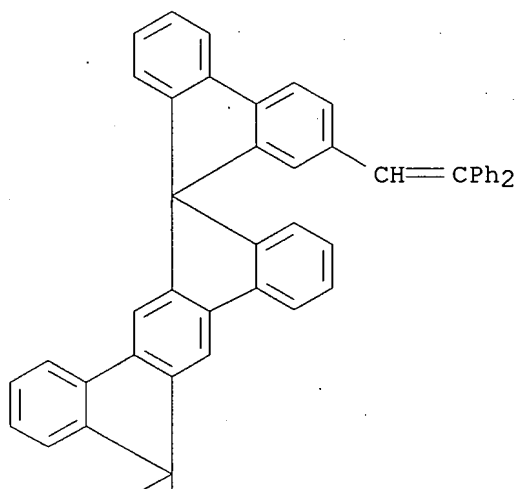


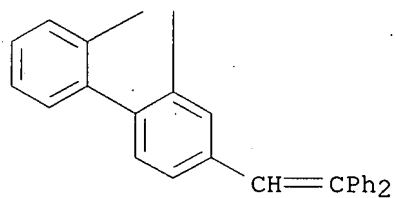
CM 5



L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Dispiro[9H-fluorene-9,6'(12'H)-indeno[1,2-b]fluorene-12',9''-  
 [9H]fluorene], 2,2''-bis(2,2-diphenylethenyl)- (9CI)  
 MF C72 H46

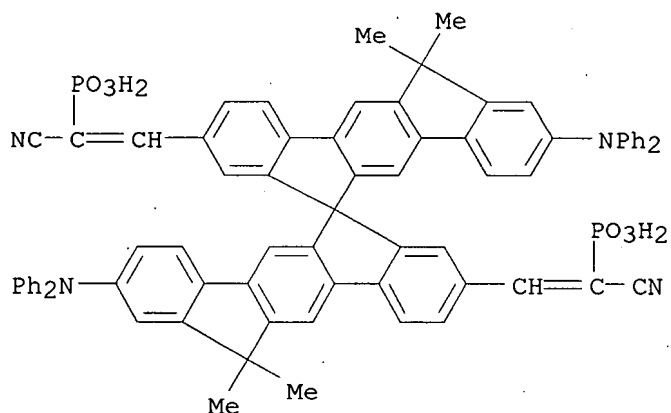
PAGE 1-A





\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

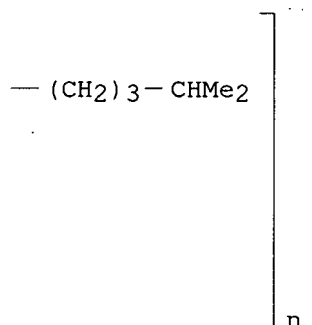
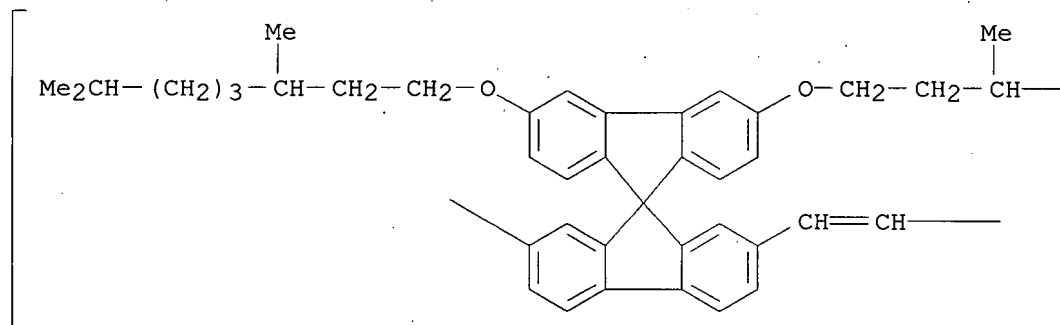
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Phosphonic acid, [[2,2'-bis(diphenylamino)-12,12,12',12'-tetramethyl-6,6'-(12H,12'H)-spirobi[indeno[1,2-b]fluorene]-8,8'-diyl]bis(1-cyano-2,1-ethenediyl)]bis- (9CI)  
 MF C73 H54 N4 O6 P2



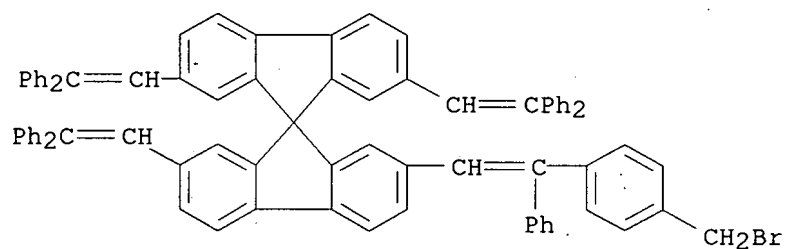
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Poly[[3',6'-bis[(3,7-dimethyloctyl)oxy]-9,9'-spirobi[9H-fluorene]-2,7-diyl]-1,2-ethenediyl]  
 MF (C47 H56 O2)<sub>n</sub>  
 CI PMS

\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*



L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2-[2-[4-(bromomethyl)phenyl]-2-phenylethenyl]-  
 2',7,7'-tris(2,2-diphenylethenyl)- (9CI)  
 MF C82 H57 Br



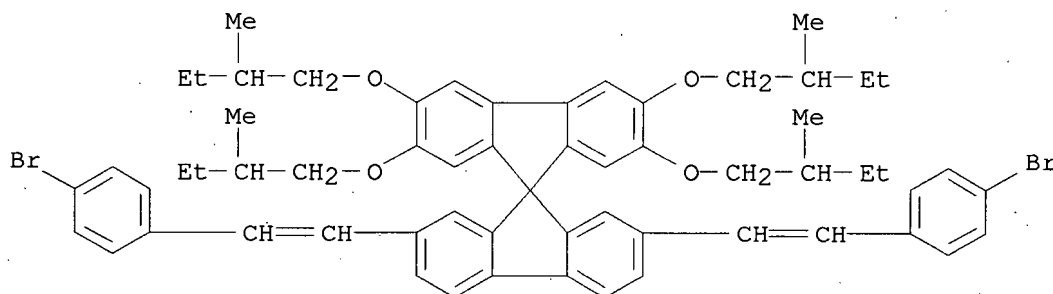
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-

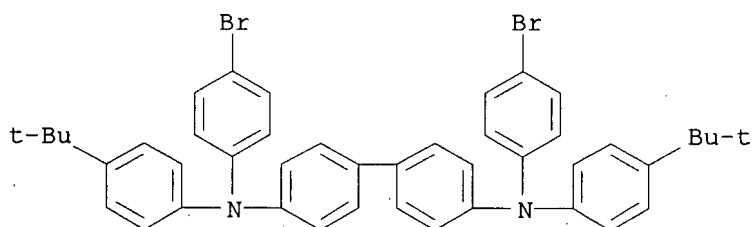
fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)

MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C44 H42 Br2 N2 . C37 H40 Br2 O2)x  
CI PMS

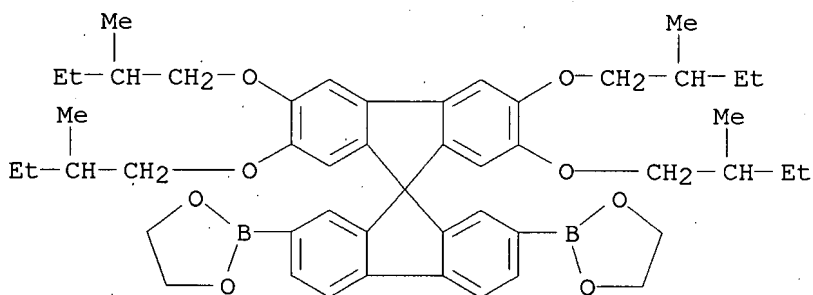
CM 1



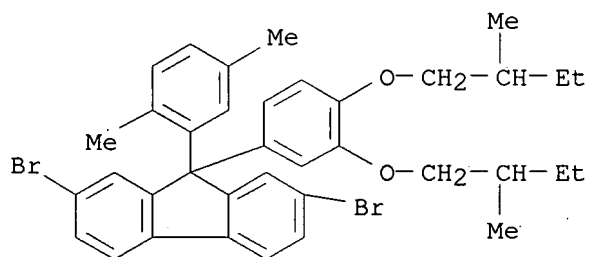
CM 2



CM 3

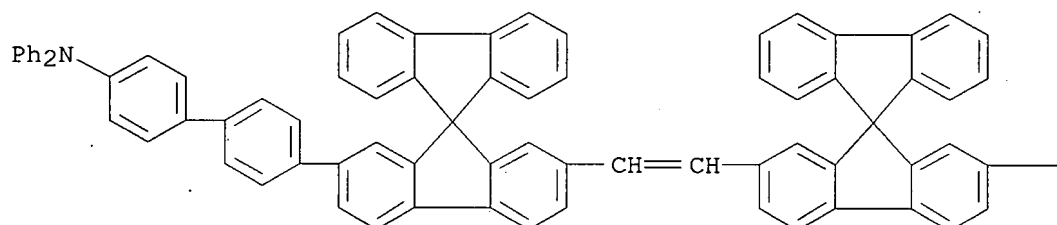


CM 4

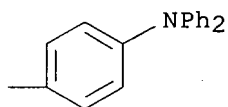


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN INDEX NAME NOT YET ASSIGNED  
 MF C94 H62 N2

PAGE 1-A



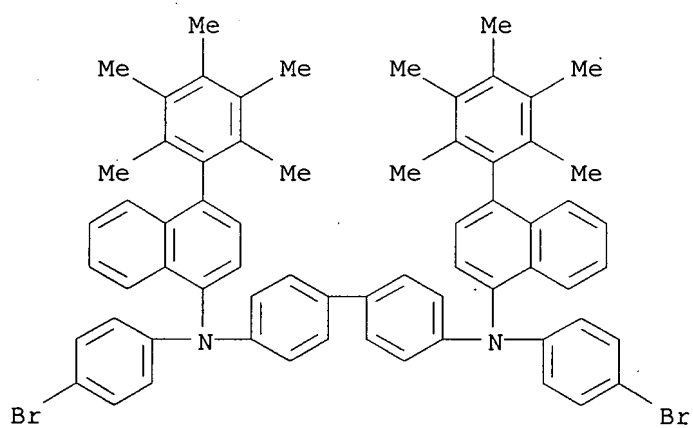
PAGE 1-B



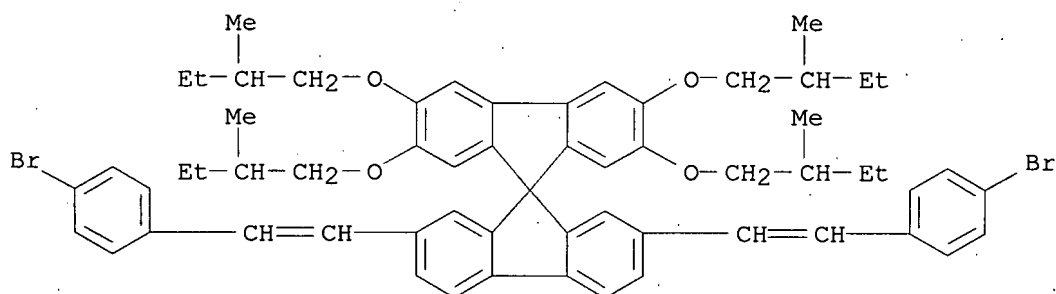
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(pentamethylphenyl)-1-naphthalenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)  
 MF (C66 H58 Br2 N2 . C61 H66 Br2 O4 . C49 H62 B2 O8 . C37 H40 Br2 O2)x  
 CI PMS

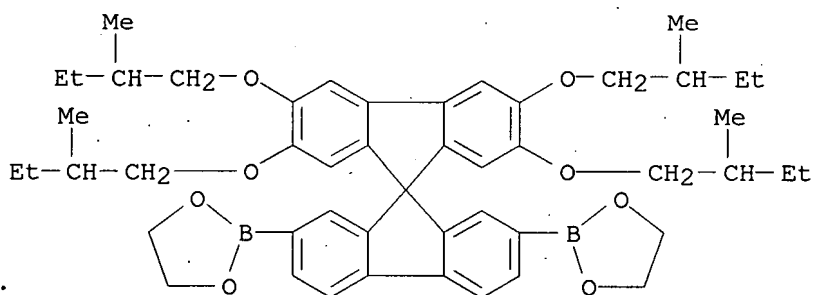
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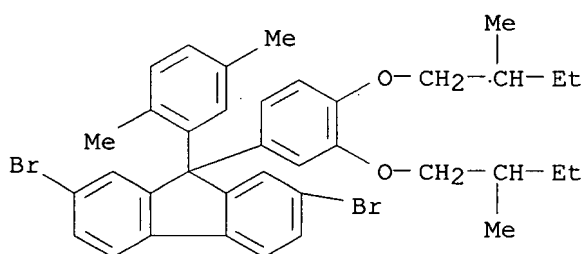
CM 2



CM 3



CM 4





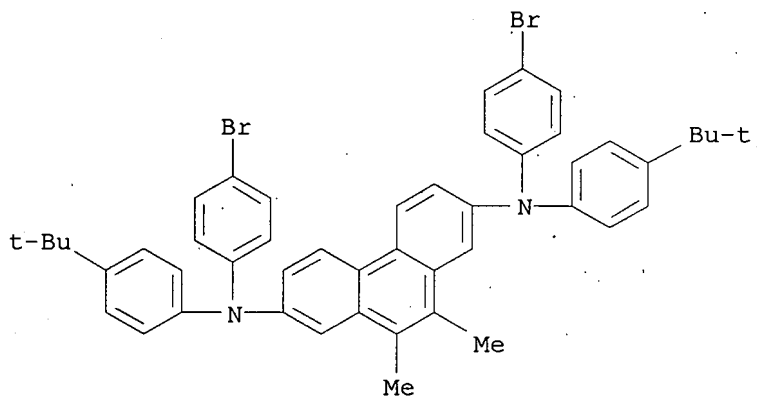
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN

IN 2,7-Phenanthrenediamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-9,10-dimethyl-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-fluorene and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI)

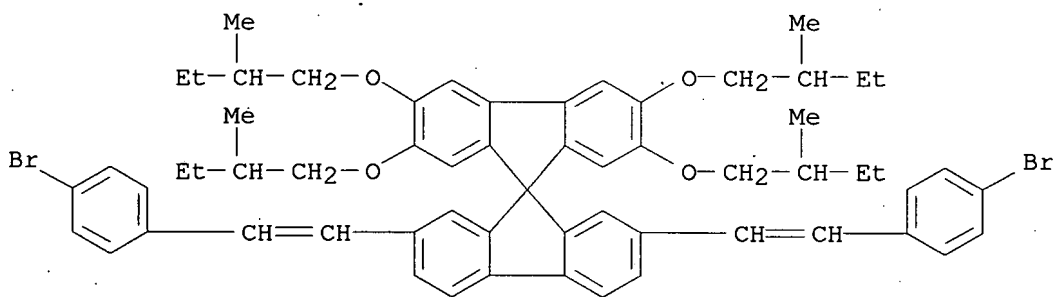
MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C48 H46 Br2 N2 . C37 H40 Br2 O2)x

CI PMS

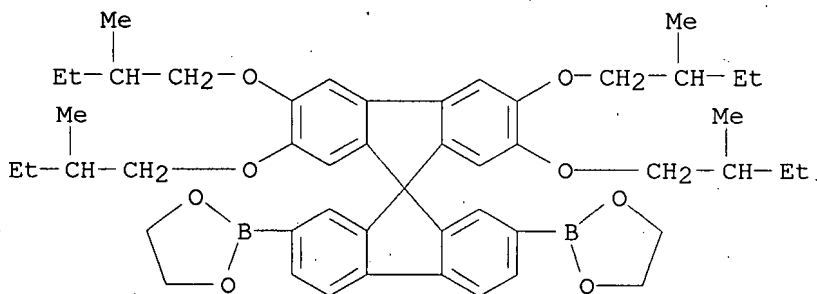
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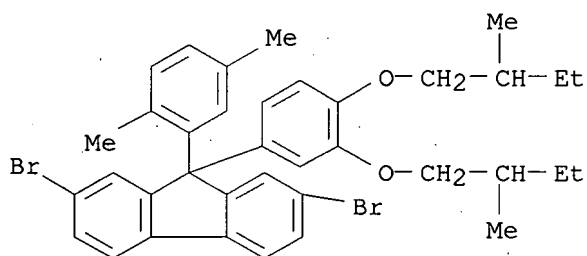
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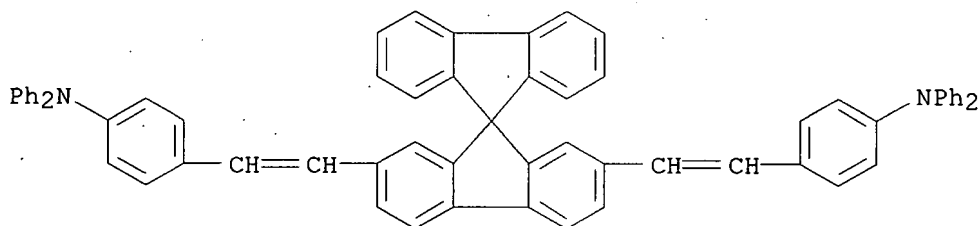
CM 3



CM 4



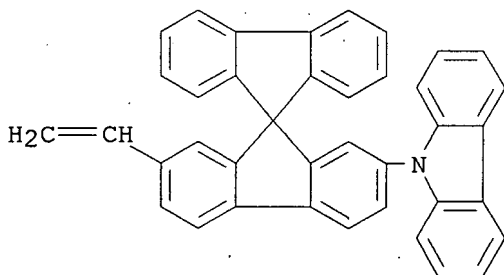
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Benzenamine, 4,4'-(9,9'-spirobi[9H-fluorene]-2,7-diyl)-2,1-ethenediyl)bis[N,N-diphenyl- (9CI)  
 MF C65 H46 N2



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9H-Carbazole, 9-(7-ethenyl-9,9'-spirobi[9H-fluorene]-2-yl)-, homopolymer (9CI)  
 MF (C39 H25 N)x  
 CI PMS

CM 1



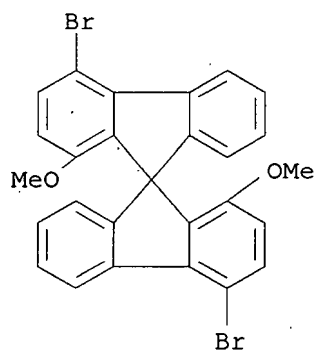
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene], 9-[3,4-bis(2-methylbutoxy)phenyl]-2,7-dibromo-9-(2,5-dimethylphenyl)-9H-

fluorene, 4,4'-dibromo-1,1'-dimethoxy-9,9'-spirobi[9H-fluorene] and  
 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-  
 diyl]bis[1,3,2-dioxaborolane] (9CI)

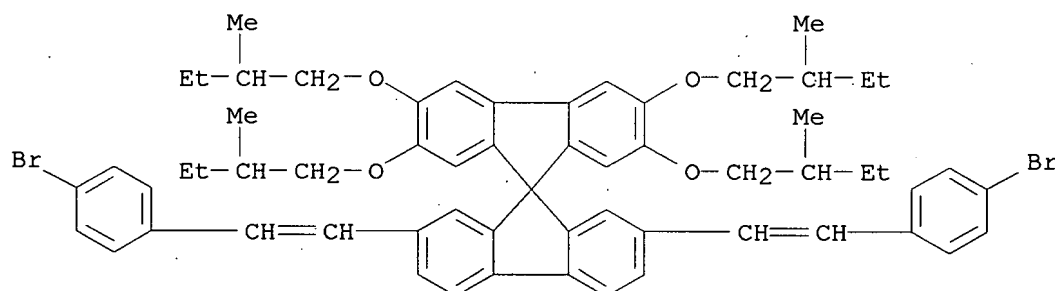
MF (C61 H66 Br2 O4 . C49 H62 B2 O8 . C44 H42 Br2 N2 . C37 H40 Br2 O2 . C27  
 H18 Br2 O2)x

CI PMS

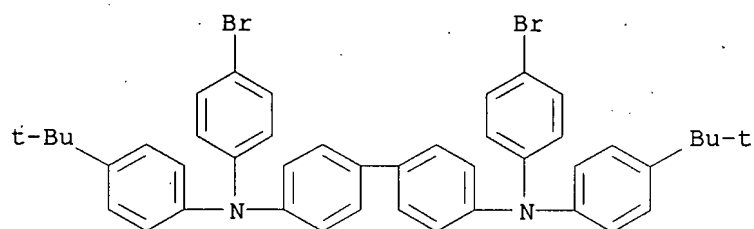
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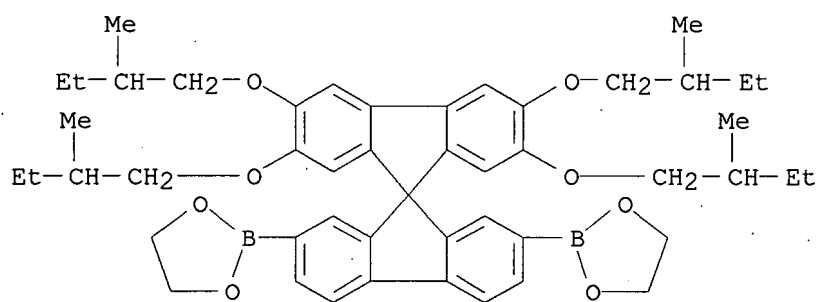
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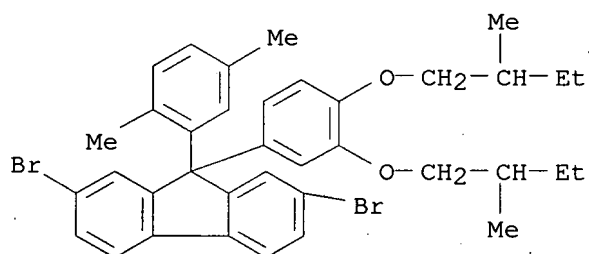
CM 3



CM 4

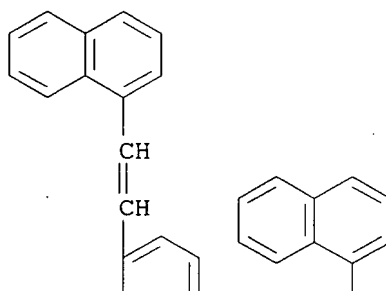


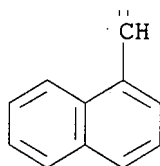
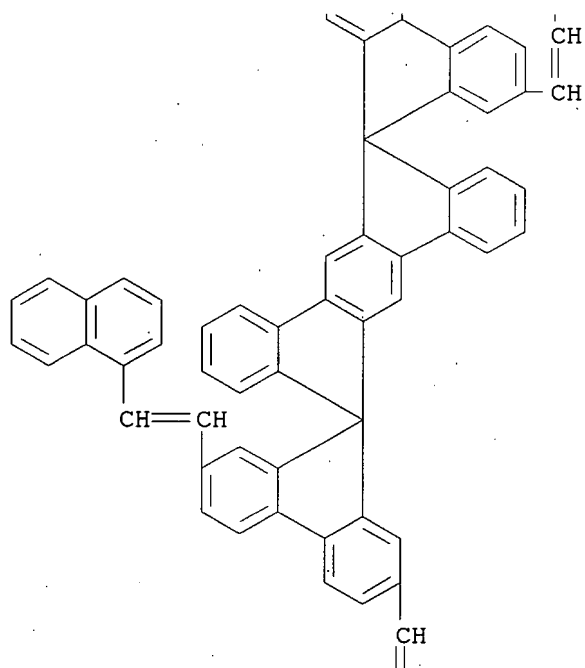
CM 5



L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN Dispiro[9H-fluorene-9,6'(12'H)-indeno[1,2-b]fluorene-12',9''-  
 [9H]fluorene], 2,2'',7,7''-tetrakis[2-(1-naphthalenyl)ethenyl]- (9CI)  
 MF C92 H58

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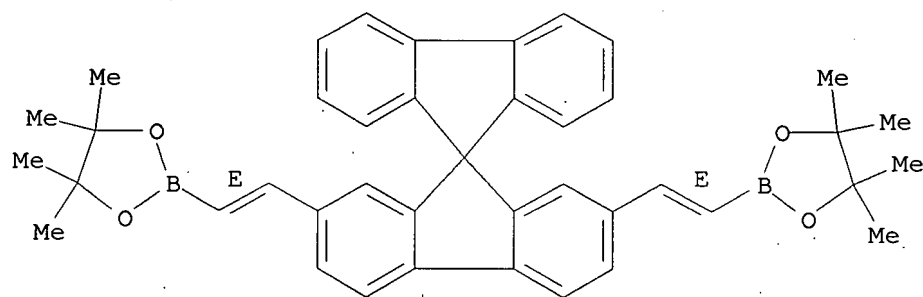




\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

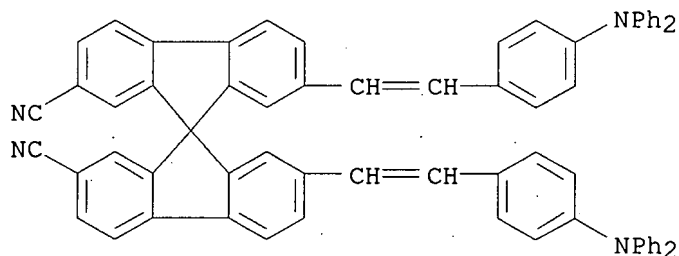
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 1,3,2-Dioxaborolane, 2,2'-[9,9'-spirobi[9H-fluorene]-2,7-diyl-di-(1E)-2,1-ethenediyl]bis[4,4,5,5-tetramethyl- (9CI)  
 MF C41 H42 B2 O4

Double bond geometry as shown.



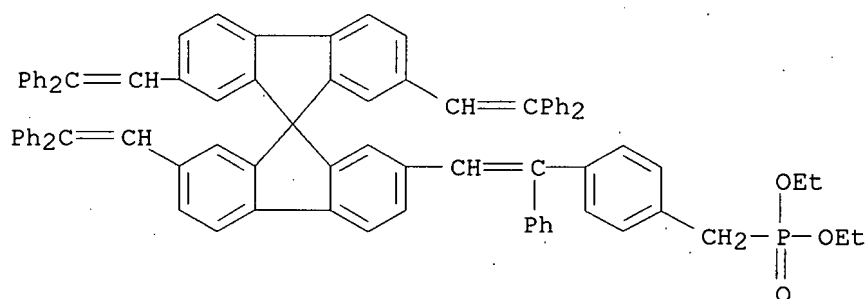
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
IN 9,9'-Spirobi[9H-fluorene]-2,2'-dicarbonitrile, 7,7'-bis[2-[4-(diphenylamino)phenyl]ethenyl]- (9CI)  
MF C67 H44 N4



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

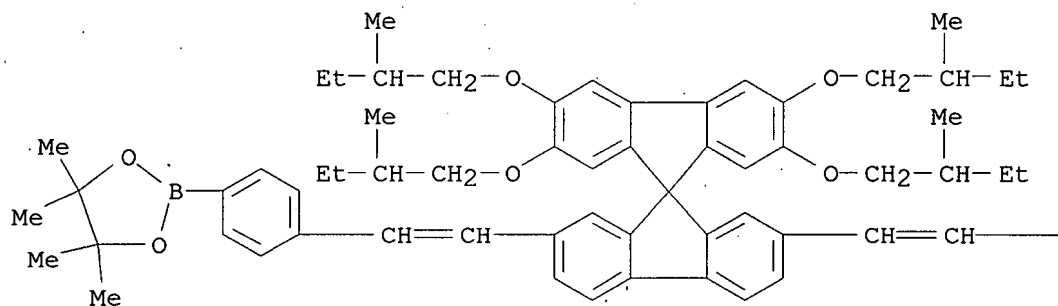
L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
IN Phosphonic acid, [[4-[1-phenyl-2-[2',7,7'-tris(2,2-diphenylethenyl)-9,9'-spirobi[9H-fluorene]-2-yl]ethenyl]phenyl]methyl]-, diethyl ester (9CI)  
MF C86 H67 O3 P



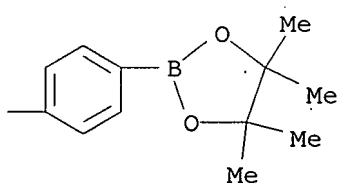
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
IN 1,3,2-Dioxaborolane, 2,2'-[[[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis(2,1-ethenediyl-4,1-phenylene)]bis[4,4,5,5-tetramethyl- (9CI)  
MF C73 H90 B2 O8  
CI COM

PAGE 1-A

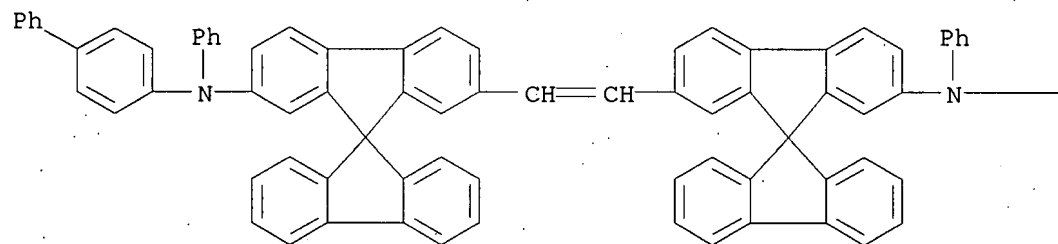


PAGE 1-B

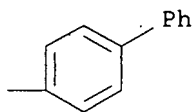


L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
IN INDEX NAME NOT YET ASSIGNED  
MF C88 H58 N2

PAGE 1-A



PAGE 1-B



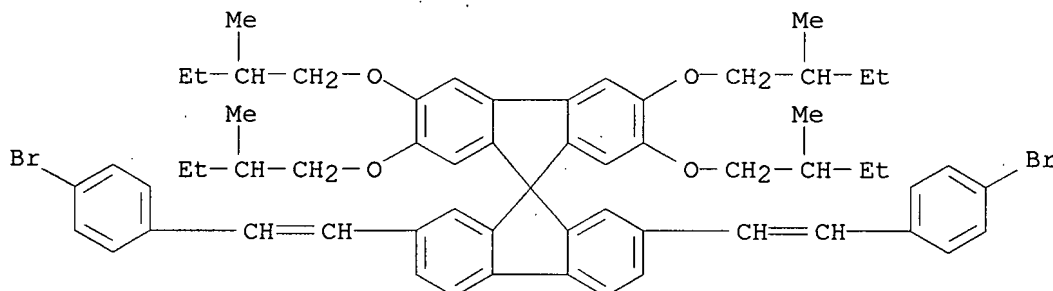
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
IN [1,1'-Biphenyl]-4,4'-diamine, N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl]-, polymer with 2',7'-bis[2-(4-bromophenyl)ethenyl]-

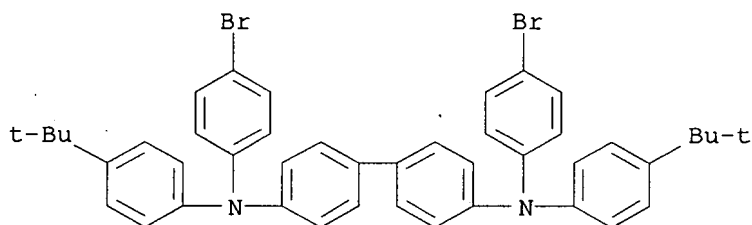
2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and  
2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]  
(9CI)

MF (C61 H66 Br2 O4 . C45 H54 Br2.O4 . C44 H42 Br2 N2)x  
CI PMS

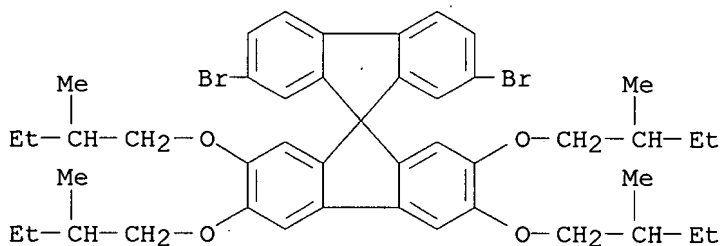
CM 1



CM 2



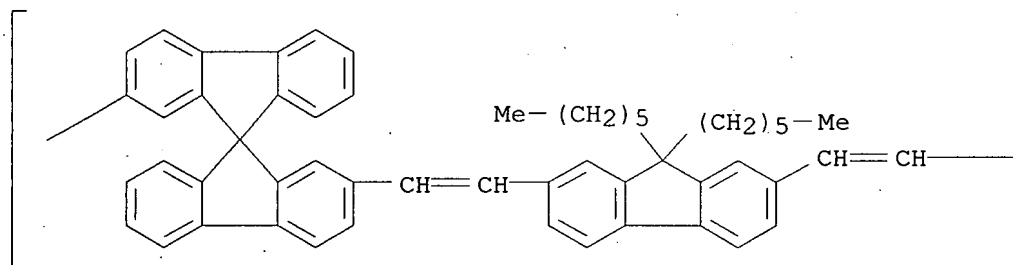
CM 3



L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
IN Poly[9,9'-spirobi[9H-fluorene]-2,2'-diyl-(1E)-1,2-ethenediyl(9,9-dihexyl-  
9H-fluorene-2,7-diyl)-(1E)-1,2-ethenediyl] (9CI)  
MF (C54 H50)n  
CI PMS

\*\*RELATED POLYMERS AVAILABLE WITH POLYLINK\*\*

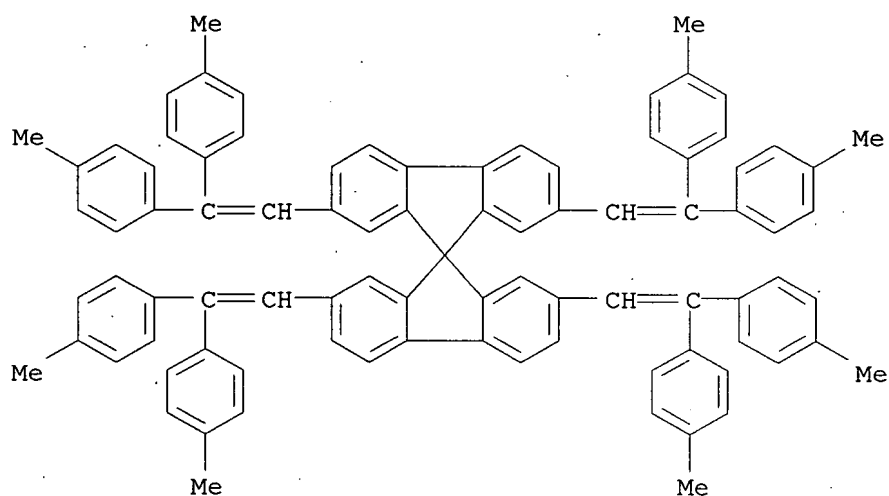




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\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

L3 83 ANSWERS REGISTRY COPYRIGHT 2007 ACS on STN  
 IN 9,9'-Spirobi[9H-fluorene], 2,2',7,7'-tetrakis[2,2-bis(4-methylphenyl)ethenyl]- (9CI)  
 MF C89 H72



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

ALL ANSWERS HAVE BEEN SCANNED

=> file stnguide

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

173.45

173.66

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USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT  
COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

FILE CONTAINS CURRENT INFORMATION.

LAST RELOADED: Aug 17, 2007 (20070817/UP).

=> file hcaplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.54

174.20

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FILE COVERS 1907 - 21 Aug 2007 VOL 147 ISS 9  
FILE LAST UPDATED: 20 Aug 2007 (20070820/ED)

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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3

L4 89 L3

=> s l4 and ?luminesce?

315329 ?LUMINESCE?

L5 74 L4 AND ?LUMINESCE?

=> dis l5 1-74 bib ab hit

L5 ANSWER 1 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2007:845167 HCAPLUS

TI electroluminescent compounds comprising fluorene group and organic electroluminescent device using the same

IN Choi, Il Won; Kim, Chi Sik; Shin, Hyo Nim; Lee, Mi Ae; Shin, Hwan Seung; Kwak, Mi Young; Kim, Nam Kyun; Kim, Bong Ok; Kim, Sung Min

PA Gracel Display Inc., S. Korea; Kwon, Hyuck Joo; Cho, Young Jun; Baek, Jung Su

SO PCT Int. Appl., 49pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2007086701	A1	20070802	WO 2007-KR456	20070126
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	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRAI KR 2006-8840 A 20060127

KR 2007-6082 A 20070119

AB The present invention relates to organic electroluminescent compds. represented by formula I, where Ar1 is a bond or fluorene derivative, Ar2 is fluorene or fluorene derivative, A and B are a bond, aryl group, Ar3-6 can be the same as Ar1-2, A and B, or halogen. The electroluminescent device is comprised of the compds. in an electroluminescent layer. The electroluminescent compound according to the invention has good luminous efficiency and excellent lifetime of the material, so that an OLED device having very good operation lifetime can be prepared

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI electroluminescent compounds comprising fluorene group and organic electroluminescent device using the same

AB The present invention relates to organic electroluminescent compds. represented by formula I, where Ar1 is a bond or fluorene derivative, Ar2 is fluorene or fluorene derivative, A and B are a bond, aryl group, Ar3-6 can be the same as Ar1-2, A and B, or halogen. The electroluminescent device is comprised of the compds. in an electroluminescent layer. The electroluminescent compound according to the invention has good luminous efficiency and excellent lifetime of the material, so that an OLED device having very good operation lifetime can be prepared

ST org electroluminescent fluorene device OLED

IT 944940-86-7P 944940-87-8P 944940-92-5P 944940-94-7P  
 944940-96-9P 944940-98-1P 944941-00-8P 944941-02-0P  
 944941-04-2P 944941-06-4P 944941-13-3P 944941-15-5P  
 944941-17-7P 944941-19-9P 944941-21-3P 944941-25-7P  
 944941-26-8P 944941-30-4P 944941-31-5P  
 944941-32-6P 944941-36-0P 944941-37-1P 944941-38-2P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(organic electroluminescent compds. comprising fluorene group)

IT 98-80-6 486-52-2 603-34-9 1074-24-4 5695-13-6 13962-92-0  
 14348-75-5 16433-88-8 20260-22-4 28320-32-3 36809-26-4  
 132717-37-4 171408-84-7 171408-85-8 186259-63-2 267221-88-5  
 869299-89-8 869299-91-2 872705-63-0 872705-64-1 944940-84-5  
 944940-85-6 944940-88-9 944940-89-0 944940-90-3 944940-91-4  
 944940-93-6 944940-95-8 944940-97-0 944940-99-2 944941-01-9  
 944941-03-1 944941-05-3 944941-07-5 944941-08-6 944941-09-7  
 944941-10-0 944941-11-1 944941-12-2 944941-14-4 944941-16-6  
 944941-18-8 944941-20-2 944941-22-4 944941-23-5 944941-24-6  
 944941-27-9 944941-28-0 944941-29-1 944941-33-7 944941-34-8  
 944941-35-9

RL: RCT (Reactant); RACT (Reactant or reagent)

(organic electroluminescent compds. comprising fluorene group)

L5 ANSWER 2 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2007:703605 HCAPLUS  
 DN 147:105012  
 TI Organic electroluminescent device with a stacked layer structure  
 of organic layers using molecular dopants to stabilize p-n-junction in the  
 structure of organic layers  
 IN Murano, Sven; Birnstock, Jan; Werner, Ansgar; Burghart, Markus  
 PA Novalde AG, Germany  
 SO PCT Int. Appl., 47pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2007071450	A1	20070628	WO 2006-EP12516	20061222
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,				
	CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,				
	GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,				
	KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,				
	MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,				
	RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT,				
	TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
	RW:				
	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,				
	IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,				
	CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,				
	GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,				
	KG, KZ, MD, RU, TJ, TM				
	EP 1804309	A1	20070704	EP 2006-1231	20060120
	R:				
	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,				
	IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL,				
	BA, HR, MK, YU				
PRAI	EP 2005-28308	A	20051223		
	EP 2006-1231	A	20060120		

AB Organic electroluminescent devices are described which comprise a  
 layer structure of organic layers, where the layer structure comprises a  
 p-n-junction between an n-type doped organic layer provided as an organic  
 matrix  
 material doped with an n-type dopant and a p-type doped organic layer  
 provided as a further organic matrix material doped with a p-type dopant, and  
 where the n-type dopant and the p-type dopant both are mol. dopants, a  
 reduction potential of the p-type dopant is equal or larger than about 0 V vs.  
 Fc / Fc+, and an oxidation potential of the n-type dopant is equal or smaller  
 than about -1.5 V vs. Fc / Fc+.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Organic electroluminescent device with a stacked layer structure  
 of organic layers using molecular dopants to stabilize p-n-junction in the  
 structure of organic layers  
 AB Organic electroluminescent devices are described which comprise a  
 layer structure of organic layers, where the layer structure comprises a  
 p-n-junction between an n-type doped organic layer provided as an organic  
 matrix  
 material doped with an n-type dopant and a p-type doped organic layer  
 provided as a further organic matrix material doped with a p-type dopant, and  
 where the n-type dopant and the p-type dopant both are mol. dopants, a  
 reduction potential of the p-type dopant is equal or larger than about 0 V vs.  
 Fc / Fc+, and an oxidation potential of the n-type dopant is equal or smaller  
 than about -1.5 V vs. Fc / Fc+.  
 ST electronic device org electroluminescent p n junction mol  
 dopant; electroluminescent device OLED stack mol dopant  
 IT Electroluminescent devices  
 (blue-emitting; organic electroluminescent device with stacked  
 layer structure of organic layers using mol. dopants to stabilize

p-n-junction in structure of organic layers)

IT Dopants  
(molecular; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT Electroluminescent devices  
p-n Semiconductor junctions  
(organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT Electroluminescent devices  
(red-emitting; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT 800395-01-1  
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(NPB doped with; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT 515850-96-1  
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(dopant in electron-transporting layer; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT 912482-15-6  
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(dopant in hole-transporting layer; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT 51786-73-3 890306-52-2  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(doped electron-transporting layer; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT 189363-47-1  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(doped hole-transporting layer; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT 123847-85-8, NPB  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(interlayer; organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

IT 296269-66-4, Spiro-DPVBI  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(organic electroluminescent device with stacked layer structure of organic layers using mol. dopants to stabilize p-n-junction in structure of organic layers)

L5 ANSWER 3 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2007:671832 HCAPLUS  
DN 147:107605  
TI Triarylamine-arylvinylene moiety-containing conjugated polymers, their production and use in electronic components such as organic LEDs  
IN Buesing, Arne; Ludemann, Aurelie; Scheurich, Rene

PA Merck Patent G.m.b.H., Germany  
 SO PCT Int. Appl., 55pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2007068325	A1	20070621	WO 2006-EP11085	20061118
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	DE 102005060473	A1	20070628	DE 2005-102005060473	20051217
PRAI	DE 2005-102005060473 A		20051217		

AB The invention relates to conjugated polymers and dendrimers containing styryl-triarylamine structural moieties of the general formula I, to their use in electronic components, especially in polymer organic LEDs, to monomers for

producing the same, and to components and LEDs containing the polymers and dendrimers. In the general formula, each numbered Ar group is chosen independently from Ar groups having different nos. as a monocyclic or polycyclic aryl or heteroaryl, which is optionally substituted once or more by R1 (in Ar1 only), R2 (in Ar2 only), R3 (in Ar3 only), or R4 (in Ar4 only). In the general formula, every instance of Y is independently chosen to represent H, F, Cl, or a C1-C40 carbon or hydrocarbon group, whereby either two Y groups or a Y group and a neighboring R1, R4, Ar1, or Ar4 group may form as combined an aliphatic or aromatic, monocyclic or polycyclic ring system. In the general formula, R1, R2, R3, and R4 are independently chosen as H, F, Cl, OH, CN, N(R)2, Si(R)3, B(R)2, or as a C1-C40 carbon or hydrocarbon group, such that two or more of groups R1-4 can be combined to form an aliphatic or an aromatic, monocyclic or polycyclic ring system; and R1, R2, and R3 can also represent a covalent bond in the polymer or dendrimer. In the general formula, all occurrences of R independently represent H or a C1-C22 straight-chain, branched or cyclic alkyl, in which one or more neighboring CH2-groups are optionally substituted by C(R0)=C(R0), C=C, -N(R0), -Si(R0)2, O, S, CO, COO, OCO, OCOO, SCO, COS such that no two O or S atoms are directly bonded to each other. In the general formula, every instance of R0 independently represents H or a C1-C20 aliphatic or aromatic hydrocarbon. In the general formula, a is 1, 2, or 3; b is 1, 2, or 3; and c is 0 or 1.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

ST triarylamine arylvinylene conjugated dendritic polymer  
 electroluminescent device

IT Electroluminescent devices  
 Integrated circuits  
 Photoelectric devices  
 Semiconductor lasers  
 Solar cells  
 Thin film transistors

(organic; triarylamine-arylvinylene moiety-containing conjugated polymers, their production and use)

IT 395059-23-1 396123-43-6 463944-36-7 501434-76-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(monomer; triarylamine-arylvinylene moiety-containing conjugated polymers, their production and use)

L5 ANSWER 4 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2007:592268 HCAPLUS  
DN 147:19439

TI Blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes

IN Jeong, Hyein; Song, Ok Keun; Koo, Young Mo; Choi, Sung Jin; Kim, Tae Shick  
PA S. Korea

SO U.S. Pat. Appl. Publ., 17pp.  
CODEN: USXXCO

DT Patent  
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2007122939	A1	20070531	US 2006-605908	20061129
	CN 1976089	A	20070606	CN 2006-10172918	20061129
	EP 1793435	A2	20070606	EP 2006-256142	20061130
	R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU				
	JP 2007158337	A	20070621	JP 2006-324339	20061130
PRAI	KR 2005-115992	A	20051130		
	KR 2006-114586	A	20061120		

AB Organic light-emitting devices with an improved blue light emitting efficiency are described which comprise a first electrode; a second electrode; an emissive layer interposed between the first and second electrodes; a first organic layer interposed between the first electrode and the emissive layer, the first organic layer comprising a first compound, the first compound having a photoluminescence spectrum maximum wavelength of about 400 nm to about 500 nm; and a second organic layer interposed between the second electrode and the emissive layer, the second organic layer comprising a second compound, the second compound having a photoluminescence spectrum maximum wavelength of about 400 nm to about 500 nm.

TI Blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes

AB Organic light-emitting devices with an improved blue light emitting efficiency are described which comprise a first electrode; a second electrode; an emissive layer interposed between the first and second electrodes; a first organic layer interposed between the first electrode and the emissive layer, the first organic layer comprising a first compound, the first compound having a photoluminescence spectrum maximum wavelength of about 400 nm to about 500 nm; and a second organic layer interposed between the second electrode and the emissive layer, the second organic layer comprising a second compound, the second compound having a photoluminescence spectrum maximum wavelength of about 400 nm to about 500 nm.

ST blue OLED electroluminescent device luminescent carrier transporting layer

IT Semiconductor device fabrication  
(blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT Electroluminescent devices  
(blue-emitting; blue-emitting organic electroluminescent devices)

with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT Luminescent substances  
(carrier transporting; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT Electroluminescent devices  
(displays; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT Luminescent screens  
(electroluminescent; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT Electric apparatus  
(electronic; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT Vapor deposition process  
(evaporation; blue-emitting organic electroluminescent devices with improved efficiency fabricated using)

IT Coating process  
(spin; blue-emitting organic electroluminescent devices with improved efficiency fabricated using)

IT Vapor deposition process  
(vacuum; blue-emitting organic electroluminescent devices with improved efficiency fabricated using)

IT 869654-26-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(CzTT, hole-transporting layer; blue-emitting organic electroluminescent devices with improved efficiency)

IT 937785-54-1, BD 118  
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(blue-emitting dopant; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT 122648-99-1, ADN  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(doped emitting layer; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT 561064-11-7 866117-19-3, Bpy-OXD  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(electron transport layer; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT 110-02-1D, Thiophene, oligomer 3355-34-8D, p-Phenylene, perfluorinated oligomer 866117-21-7, Bpy-OXDpy  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron transport layer; blue-emitting organic



electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT 123847-85-8,  $\alpha$ -NPD 182069-71-2

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(hole-transporting layer; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

IT 120-12-7, Anthracene, uses 1450-63-1, TPB 2519-10-0, PPCP 7128-64-5, BBOT 13280-61-0, DST (hole transport material) 16756-03-9, AZM-Zn 58473-78-2, 1,1-Bis(4-di-p-tolylaminophenyl)cyclohexane 65181-78-4, TPD 69183-96-6 89114-91-0, TPA (hole transport material) 124729-98-2, m-MTDATA 138372-68-6 139092-78-7, TCTA 186412-15-7 189363-47-1, Spiro-TAD 296269-66-4, Spiro-DPVBi 302579-12-0 376367-93-0, Flrpic 404001-42-9, Spiro-NPB 811436-80-3, 1,1-Bis(4-di-p-tolylaminophenyl)-4-phenylcyclohexane 873814-26-7

RL: TEM (Technical or engineered material use); USES (Uses)

(hole-transporting layer; blue-emitting organic electroluminescent devices with improved efficiency due to careful selection of luminescent carrier-transporting layers surrounding emissive layer to regulate recombination of electrons and holes)

L5 ANSWER 5 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2007:483943 HCAPLUS

DN 147:105116

TI Triplet-exciton quenching in organic phosphorescent light-emitting diodes with Ir-based emitters

AU Reineke, Sebastian; Walzer, Karsten; Leo, Karl

CS Institut fuer Angewandte Photophysik, Technische Universitaet Dresden, Dresden, D-01062, Germany

SO Physical Review B: Condensed Matter and Materials Physics (2007), 75(12), 125328/1-125328/13

CODEN: PRBMDO; ISSN: 1098-0121

PB American Physical Society

DT Journal

LA English

AB The authors investigated quenching processes which contribute to the roll-off in quantum efficiency of phosphorescent organic light-emitting diodes (OLED's) at high brightness: triplet-triplet annihilation, energy transfer to charged mols. (polarons), and dissociation of excitons into free charge carriers. The investigated OLED's comprise a host-guest system as emission layer within a state-of-the-art OLED structure-i.e., a five-layer device including doped transport and thin charge carrier and exciton blocking layers. In a red phosphorescent device, N,N'-di(naphthalen-2-yl)-N,N'-diphenyl-benzidine is used as matrix and tris(1-phenylisoquinoline) iridium [Ir(piq)3] as emitter mol. This structure is compared to a green phosphorescent OLED with a host-guest system comprising the matrix 4,4',4''-tris(N-carbazolyl)-triphenylamine and the well-known triplet emitter fac-tris(2-phenylpyridine) iridium [Ir(ppy)3]. The triplet-triplet annihilation is characterized by the rate constant  $k_{TT}$  which is determined by time-resolved photoluminescence expts. To investigate triplet-polaron quenching, unipolar devices were prepared. A certain exciton d., created by continuous-wave illumination, is analyzed as a function of c.d. flowing through the device. This delivers the corresponding rate constant  $k_P$ . Field-induced quenching is not observed under typical OLED operation conditions. The exptl. data are implemented in an anal. model taking in account both triplet-triplet annihilation and triplet-polaron quenching. It shows that both processes strongly influence the OLED performance. Compared to the red Ir(piq)3 OLED, the green Ir(ppy)3 device shows a stronger efficiency roll-off which is mainly

due to a longer phosphorescent lifetime  $\tau$  and a thinner exciton formation zone w.

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB The authors investigated quenching processes which contribute to the roll-off in quantum efficiency of phosphorescent organic light-emitting diodes (OLED's) at high brightness: triplet-triplet annihilation, energy transfer to charged mols. (polarons), and dissociation of excitons into free charge carriers. The investigated OLED's comprise a host-guest system as emission layer within a state-of-the-art OLED structure-i.e., a five-layer device including doped transport and thin charge carrier and exciton blocking layers. In a red phosphorescent device, N,N'-di(naphthalen-2-yl)-N,N'-diphenyl-benzidine is used as matrix and tris(1-phenylisoquinoline) iridium [Ir(piq)3] as emitter mol. This structure is compared to a green phosphorescent OLED with a host-guest system comprising the matrix 4,4',4''-tris(N-carbazolyl)-triphenylamine and the well-known triplet emitter fac-tris(2-phenylpyridine) iridium [Ir(ppy)3]. The triplet-triplet annihilation is characterized by the rate constant  $k_{TT}$  which is determined by time-resolved photoluminescence expts. To investigate triplet-polaron quenching, unipolar devices were prepared. A certain exciton d., created by continuous-wave illumination, is analyzed as a function of c.d. flowing through the device. This delivers the corresponding rate constant  $k_P$ . Field-induced quenching is not observed under typical OLED operation conditions. The exptl. data are implemented in an anal. model taking in account both triplet-triplet annihilation and triplet-polaron quenching. It shows that both processes strongly influence the OLED performance. Compared to the red Ir(piq)3 OLED, the green Ir(ppy)3 device shows a stronger efficiency roll-off which is mainly due to a longer phosphorescent lifetime  $\tau$  and a thinner exciton formation zone w.

IT Electroluminescent devices

(OLED; triplet-exciton quenching in organic phosphorescent light-emitting diodes containing Ir-based emitters)

IT Electroluminescent devices

(displays, OLED; triplet-exciton quenching in organic phosphorescent light-emitting diodes containing Ir-based emitters in relation to)

IT Luminescent screens

(electroluminescent, OLED; triplet-exciton quenching in organic phosphorescent light-emitting diodes containing Ir-based emitters in relation to)

IT Current density

Electric current-potential relationship

Electroluminescence

Luminescence

Phosphorescence quenching

Photoinduced energy transfer

Polaron

Triplet state transition

(triplet-triplet annihilation and triplet-polaron quenching in organic phosphorescent light-emitting diodes containing Ir-based emitters)

IT 296269-66-4, Spiro-DPVBi

RL: NUU (Other use, unclassified); USES (Uses)

(fluorescent sensor; triplet-triplet annihilation and triplet-polaron quenching in organic phosphorescent light-emitting diodes containing

Ir-based

emitters)

L5 ANSWER 6 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2007:200369 HCAPLUS

DN 146:285475

TI Solvent mixture containing an organic solvent and an alkene additive for spin coating and film formation of organic semiconductors

IN Becker, Heinrich; Heun, Susanne

PA Merck Patent G.m.b.H., Germany  
 SO PCT Int. Appl., 25pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2007019944	A1	20070222	WO 2006-EP7295	20060725
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	DE 102005039528	A1	20070222	DE 2005-102005039528	20050818
PRAI	DE 2005-102005039528 A		20050818		

AB. The invention relates to solns. of at least one organic semiconductor in at least one organic solvent with at least one aliphatic or cycloaliph. alkene, and to the use thereof for producing layers of organic semiconductors on substrates, especially for the electronics industry. The entire solvent mixture comprises 0.01-20 weight% of the alkene additive. Functional copolymer semiconductor materials are dissolved in the inventive solvent mixts. for spin coating onto substrate materials. Possibly, the alkene additives increase the quality of functional layers by reacting with mols. in the processing atmospheric, such as ozone, which can damage the layers during their formation. Preferably, the alkenes are selected so that their reaction products with ozone, such as aldehydes, contain at most 1 to 10 C atoms.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Conducting polymers  
 Electroluminescent devices  
 (solvent mixture containing an organic solvent and an alkene additive for spin coating and film formation of organic semiconductors)

IT 357645-05-7, 2,5-Bis(chloromethyl)-3'-(3,7-dimethyloctyloxy)biphenyl-2,5-bis(chloromethyl)-4-methoxy-3',4'-bis(2-methylpropyloxy)biphenyl copolymer 501434-88-4, 2',3',6',7'-Tetra(2-methylbutyloxy)spirobifluorene-2,7-bis(boronic acid ethylene glycol ester)-2,7-dibromo-2',3',6',7'-tetra((2-methylbutyloxy)spirobifluorene)-N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)benzidine-2,3,6,7-tetra(2-methylbutyloxy)-2',7'-(4-bromostyryl)-9,9'-spirobifluorene copolymer 926936-05-2, 2',3',6',7'-Tetra(2-methylbutyloxy)spirobifluorene-2,7-bis(boronic acid ethylene glycol ester)-2,7-dibromo-2',3',6',7'-tetrakis(2-methylbutyloxy)spirobifluorene-N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)benzidine-2,3,6,7-tetra(2-methylbutyloxy)-2',7'-(4-bromostyryl)-9,9'-spirobifluorene-1-(2-ethylhexyloxy)-4-methoxy-2,5-bis(4-bromo-2,5-dimethoxystyryl)benzene-bis(4,7-(2'-bromo-5'thienyl)-2,1,3-benzothiadiazole copolymer

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
 (organic semiconductor; solvent mixture containing an organic solvent and an alkene additive for spin coating and film formation of organic semiconductors)

L5 ANSWER 7 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2007:148695 HCAPLUS  
 DN 146:451105  
 TI Role of carrier mobility, exciton diffusion, and their interplay for charge balance and improved properties of organic electrophosphorescent device  
 AU Chin, Byung Doo; Lee, Soo-Hyeong; Kim, Jai Kyeong; Lee, Chang Hee  
 CS Optoelectronic Materials Research Center, Korea Institute of Science and Technology, Seoul, 130-650, S. Korea  
 SO Proceedings of SPIE-The International Society for Optical Engineering (2006), 6333(Organic Light Emitting Materials and Devices X), 633315/1-633315/9  
 CODEN: PSISDG; ISSN: 0277-786X  
 PB SPIE-The International Society for Optical Engineering  
 DT Journal  
 LA English  
 AB In this paper, we demonstrated that controlled charge trapping, both at the emission layer and charge transport layer with energy level alignment, is essential for charge-balanced and effective electrophosphorescent organic light-emitting device (OLED). Conditions for enhanced efficiency and lifetime of OLED were obtained with graded doping profile at the light-emission layers (varied host-dopant concentration) and different hole (exciton) blocking materials. Conceptual device physics presented in this study can be applied at an initial design of charge-confined, balanced structure of highly efficient electrophosphorescent devices.  
 RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT  
 IT Electroluminescent devices  
 (organic; role of carrier mobility, exciton diffusion, and their interplay for charge balance and improved properties of electrophosphorescent organic light-emitting device)  
 IT Band gap  
 Diffusion  
 Electric current-potential relationship  
 Electroluminescence  
 HOMO (molecular orbital)  
 LUMO (molecular orbital)  
 (role of carrier mobility, exciton diffusion, and their interplay for charge balance and improved properties of electrophosphorescent organic light-emitting device)  
 IT 146162-54-1, BALq 296269-66-4, Spiro-DPVBi  
 RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
 (BCzVB-doped; role of carrier mobility, exciton diffusion, and their interplay for charge balance and improved properties of electrophosphorescent organic light-emitting device)

L5 ANSWER 8 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2007:28230 HCAPLUS  
 DN 146:261470  
 TI Influence of carrier conductivity and injection on efficiency and chromaticity in small-molecule white organic light-emitting diodes based on 4,4'-bis(2,2'-diphenylvinyl)-1,1'-spirobiphenyl and rubrene  
 AU van Gemmern, Philipp; van Elsbergen, Volker; Grabowski, Stefan Peter; Boerner, Herbert; Lobl, Hans-Peter; Becker, Heinrich; Kalisch, Holger; Heuken, Michael; Jansen, Rolf H.  
 CS Institut für Theoretische Elektrotechnik, RWTH Aachen, Aachen, 52074, Germany  
 SO Journal of Applied Physics (2006), 100(12), 123707/1-123707/6  
 CODEN: JAPIAU; ISSN: 0021-8979  
 PB American Institute of Physics  
 DT Journal  
 LA English

AB Organic light-emitting devices (OLEDs) employing yellow-emitting 5,6,11,12-tetraphenylnaphthacene (rubrene) and blue-emitting 4,4'-bis(2,2'-diphenylvinyl)-1,1'-spirobiphenyl are optimized using a vacuum thermal evaporator. The influence of various hole injection/hole transport stacks and electron transport materials on the device performance and the electroluminescence spectra are discussed. Device characteristics are explained by the charge carrier distribution among the organic layers. OLEDs with warm-white emission with color coordinates of  $x = 0.43$  and  $y = 0.42$  were produced with power and current efficiencies of 5 lm/W and 10.9 cd/A, resp., at a luminance of 1000 cd/m<sup>2</sup>. The maximum external quantum efficiency at a c.d. of 20 mA/cm<sup>2</sup> was 4.6%.

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Organic light-emitting devices (OLEDs) employing yellow-emitting 5,6,11,12-tetraphenylnaphthacene (rubrene) and blue-emitting 4,4'-bis(2,2'-diphenylvinyl)-1,1'-spirobiphenyl are optimized using a vacuum thermal evaporator. The influence of various hole injection/hole transport stacks and electron transport materials on the device performance and the electroluminescence spectra are discussed. Device characteristics are explained by the charge carrier distribution among the organic layers. OLEDs with warm-white emission with color coordinates of  $x = 0.43$  and  $y = 0.42$  were produced with power and current efficiencies of 5 lm/W and 10.9 cd/A, resp., at a luminance of 1000 cd/m<sup>2</sup>. The maximum external quantum efficiency at a c.d. of 20 mA/cm<sup>2</sup> was 4.6%.

IT Current efficiency  
Electroluminescence  
Electroluminescent devices  
Glass substrates  
(influence of carrier conductivity and injection on efficiency and chromaticity in small-mol. white organic light-emitting diodes based on 4,4'-bis(2,2'-diphenylvinyl)-1,1'-spirobiphenyl and rubrene)

IT 517-51-1, Rubrene 1662-01-7, 4,7-Diphenyl-1,10-phenanthroline 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 29261-33-4, Tetrafluorotetracyanoquinodimethane 123847-85-8,  $\alpha$ -NPD 185690-41-9 189363-47-1, 2,2',7,7'-Tetrakis-(N,N-diphenylamino)-spiro-9,9'-bifluorene 192198-85-9, TPBI 296269-66-4  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(influence of carrier conductivity and injection on efficiency and chromaticity in small-mol. white organic light-emitting diodes based on 4,4'-bis(2,2'-diphenylvinyl)-1,1'-spirobiphenyl and rubrene)

L5 ANSWER 9 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:1107831 HCAPLUS

DN 146:82441

TI Synthesis and electro-optical properties of spiro-bifluorenylvinylene-based polymers for light-emitting diodes applications

AU Shin, Won Suk; Joo, Moon-Kyu; Kim, Sung Chul; Park, Sung-Min; Jin, Sung-Ho; Shim, Jong-Min; Lee, Jin Kook; Lee, Jae Wook; Gal, Yeong-Soon; Jenekhe, Samson A.

CS Department of Chemistry Education and Interdisciplinary Program of Advanced Information and Display Materials, Pusan National University, Pusan, S. Korea

SO Journal of Materials Chemistry (2006), 16(42), 4123-4132  
CODEN: JMACEP; ISSN: 0959-9428

PB Royal Society of Chemistry

DT Journal

LA English

AB Five new thermally robust electroluminescent arylenevinylene conjugated polymers, including poly[3',6'-bis(3,7-dimethyloctyloxy)-9,9'-spirobifluorenyl-2,7-vinylene] [(OC10)2-spiro-PFV] and poly[{3',6'-bis(3,7-dimethyloctyloxy)-9,9'-spirobifluorenyl-2,7-vinylene}-co-2-(methoxy-5-(2-ethylhexyloxy)-1,4-phenylenevinylene)]

[(OC10)2-Spiro-PFV-co-MEH-PPV], were synthesized and used to fabricate efficient light-emitting diodes (LEDs). The glass transition temps. of the polymers were found to be higher than those of PPVs [poly(p-phenylenevinylene)] and PFs [poly(9,9-dialkylfluorenes)], and are in the range 170°-222°. ITO/PEDOT/polymer/LiF/Al LEDs containing the new polymers were found to have emission colors that vary from blue (467 nm) to yellow (587 nm) depending on the copolymer composition. The maximum brightness and luminance efficiency of these LEDs were found to be up to 4062 cd m<sup>-2</sup> and 1.79 cd A<sup>-1</sup> resp.

RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Five new thermally robust electroluminescent arylenevinylene conjugated polymers, including poly[3',6'-bis(3,7-dimethyloctyloxy)-9,9'-spirobifluorenyl-2,7-vinylene] [(OC10)2-spiro-PFV] and poly[[3',6'-bis(3,7-dimethyloctyloxy)-9,9'-spirobifluorenyl-2,7-vinylene]-co-2-(methoxy-5-(2-ethylhexyloxy)-1,4-phenylenevinylene)] [(OC10)2-Spiro-PFV-co-MEH-PPV], were synthesized and used to fabricate efficient light-emitting diodes (LEDs). The glass transition temps. of the polymers were found to be higher than those of PPVs [poly(p-phenylenevinylene)] and PFs [poly(9,9-dialkylfluorenes)], and are in the range 170°-222°. ITO/PEDOT/polymer/LiF/Al LEDs containing the new polymers were found to have emission colors that vary from blue (467 nm) to yellow (587 nm) depending on the copolymer composition. The maximum brightness and luminance efficiency of these LEDs were found to be up to 4062 cd m<sup>-2</sup> and 1.79 cd A<sup>-1</sup> resp.

IT Band gap  
Brightening  
Electroluminescent devices  
Emissivity  
Energy level  
Glass transition temperature  
HOMO (molecular orbital)  
Luminescence  
Luminescence, electroluminescence  
Polymerization

(synthesis and electro-optical properties of spiro-bifluorenylvinylene-based polymers for light-emitting diodes applications)  
IT 917100-00-6P 917100-01-7P 917100-02-8P, 2,7-Bis(chloromethyl)-3',6'-bis(3,7-dimethyloctyloxy)-9,9'-spirobifluorene-1,4-bis(chloromethyl)-2-(2-ethylhexyloxy)-5-methoxybenzene copolymer  
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis and electro-optical properties of spiro-bifluorenylvinylene-based polymers for light-emitting diodes applications)

L5 ANSWER 10 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:934261 HCAPLUS

DN 145:479869

TI Highly efficient white organic light emitting diodes comprising an interlayer to separate fluorescent and phosphorescent regions

AU Schwartz, Gregor; Fehse, Karsten; Pfeiffer, Martin; Walzer, Karsten; Leo, Karl

CS Institut für Angewandte Photophysik, Technische Universität Dresden, Dresden, 01069, Germany

SO Applied Physics Letters (2006), 89(8), 083509/1-083509/3  
CODEN: APPLAB; ISSN: 0003-6951

PB American Institute of Physics

DT Journal

LA English

AB White organic light emitting diodes combining the phosphorescent green and orange-red emitting systems fac tris(2-phenylpyridine) Ir doped 4,4',4''-tris(N-carbazolyl)-triphenylamine (TCTA) and Ir(III)bis(2-methyldibenzo-[f,h]quinoxaline)(acetylacetonate) doped

N,N'-di(naphthalen-1-yl)-N,N'-diphenyl-benzidine with the blue fluorescent dye 2,2',7,7'-tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene (Spiro-DPVB) are presented. By introducing a thin layer of coevaporated TCTA and 2,2',2'' (1,3,5-benzenetriyl) tris-[1-phenyl-1H-benzimidazole] between the phosphorescent and the fluorescent region, both singlet and triplet excitons are confined efficiently, whereas charge carriers still pass easily this interlayer. Also, the interlayer suppresses Dexter transfer of the phosphorescent excitons to the nonradiative triplet state of Spiro-DPVB. Best devices reach a current efficiency of 16.3 cd/A at 100 cd/m<sup>2</sup> and a color rendering index of 85 at warm white CIE chromaticity coordinates of (0.47, 0.42). Due to the use of elec. doped charge transport layers, 100 cd/m<sup>2</sup> are obtained at 2.95 V with a power efficiency of 17.4 lm/W.

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electroluminescent devices  
(highly efficient white organic LED containing interlayer to sep.  
fluorescent  
and phosphorescent regions)

IT Current efficiency  
Luminescence, electroluminescence  
(of highly efficient white organic LED containing interlayer to sep.  
fluorescent and phosphorescent regions)

IT 1662-01-7, 4,7-Diphenyl-1,10-phenanthroline 139092-78-7,  
4,4',4''-Tris(N-carbazolyl)-triphenylamine 189363-47-1,  
2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene 296269-66-4  
, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene  
RL: DEV (Device component use); USES (Uses)

(highly efficient white organic LED containing interlayer to sep.  
fluorescent  
and phosphorescent regions)

L5 ANSWER 11 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:706075 HCAPLUS

DN 145:155755

TI Organic light-emitting devices employing an exciton pinning layer between  
luminescent layers, and method for preparing the organic  
light-emitting devices

IN Kim, Mu-Gyeom; Kang, In-Nam; Kim, Sang-Yeol; Lee, Tae-Woo

PA S. Korea

SO U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2006158105	A1	20060720	US 2006-328157	20060110
	KR 2006084733	A	20060725	KR 2005-5529	20050120
	CN 1809236	A	20060726	CN 2005-10099231	20050907
	JP 2006202747	A	20060803	JP 2006-7759	20060116
PRAI	KR 2005-5529	A	20050120		

AB Organic light-emitting devices are described which comprise a first  
electrode; a second electrode; and an organic layer that is interposed  
between the two electrodes and has at least a luminescent layer,  
where the luminescent layer includes a first luminescent  
layer and a second luminescent layer, and an exciton pinning  
layer interposed between the first luminescent layer and the  
second luminescent layer is provided.

TI Organic light-emitting devices employing an exciton pinning layer between  
luminescent layers, and method for preparing the organic  
light-emitting devices

AB Organic light-emitting devices are described which comprise a first

electrode; a second electrode; and an organic layer that is interposed between the two electrodes and has at least a luminescent layer, where the luminescent layer includes a first luminescent layer and a second luminescent layer, and an exciton pinning layer interposed between the first luminescent layer and the second luminescent layer is provided.

ST org electroluminescent device fabrication exciton pinning layer

IT Amines, uses

RL: DEV (Device component use); USES (Uses)

(aromatic, luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT Luminescent substances

(exciton-pinning; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT Coating process

Electroluminescent devices

Heat treatment

Semiconductor device fabrication

(organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 869654-26-2, CzTT

RL: DEV (Device component use); USES (Uses)

(CzTT, luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 13280-61-0, DST

RL: DEV (Device component use); USES (Uses)

(DST, luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 693794-98-8, Ir(ppy)<sub>3</sub>

RL: DEV (Device component use); USES (Uses)

(Ir(ppy)<sub>3</sub>, luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 171408-93-8, Spiro-6P

RL: DEV (Device component use); USES (Uses)

(Spiro-6P, luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 296269-66-4, Spiro-DPVB<sub>i</sub>

RL: DEV (Device component use); USES (Uses)

(Spiro-DPVB<sub>i</sub>, luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 89114-91-0, TPA

RL: DEV (Device component use); USES (Uses)

(TPA, luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 7787-32-8, Barium fluoride

RL: DEV (Device component use); USES (Uses)

(electron-injection material; organic light-emitting devices employing



exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 155090-83-8, PEDOT:PSS  
 RL: DEV (Device component use); USES (Uses)  
 (hole-injection material; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 639508-40-0, BFE  
 RL: DEV (Device component use); USES (Uses)  
 (hole-transporting layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 120-12-7, Anthracene, uses 1047-16-1, Quinacridone 2519-10-0, PPCP 7128-64-5, BBOT 9033-83-4D, Poly(phenylene), derivs. 11120-54-0D, Oxadiazole, dyes 14054-87-6 16756-03-9, AZM-Zn 25233-34-5D, Polythiophene, derivs. 38215-36-0, Coumarin 6 38394-52-4, DSA 51325-91-8, DCM 1 51325-95-2, DCM 2 58505-78-5, TPB 95270-88-5D, derivs. 96638-49-2D, Polyphenylenevinylene, derivs. 138372-68-6, OXD-4 142289-08-5, DPVBi 155306-71-1, C 545T 200052-70-6, DCJTb  
 RL: DEV (Device component use); USES (Uses)  
 (luminescent or exciton-pinning layer; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 899795-29-0, TS 9 (luminophor)  
 RL: DEV (Device component use); USES (Uses)  
 (organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

IT 1330-20-7, Xylene, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvent; organic light-emitting devices employing exciton pinning layer between luminescent layers, and method for preparing the organic light-emitting devices)

L5 ANSWER 12 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2006:668858 HCAPLUS  
 DN 145:344699

TI Combinatorial study of exciplex formation at the interface between two wide band gap organic semiconductors  
 AU Li, G.; Kim, C. H.; Zhou, Z.; Shinar, J.; Okumoto, K.; Shirota, Y.  
 CS Ames Laboratory-USDOE and Department of Physics and Astronomy, Iowa State University, Ames, IA, 50011-3020, USA

SO Applied Physics Letters (2006), 88(25), 253505/1-253505/3  
 CODEN: APPLAB; ISSN: 0003-6951

PB American Institute of Physics  
 DT Journal  
 LA English

AB Combinatorial screening of exciplex formation in blends of 4,4',4''-tris[2-naphthyl (phenyl)-amino] triphenylamine (2-TNATA), and 2,2',7,7'-tetrakis(2,2'-diphenylvinyl) spiro-9,9'-bifluorene (spiro-DPVBi) is described. The blended layer was incorporated in ITO/[2-TNATA]/[1:1 2-TNATA:spiro-DPVBi]/[N, N' - di-Ph - N, N' - bis (1-naphthylphenyl) - 1, 1' - bi-Ph - 4, 4'-diamine (NPB)]/[spiro-DPVBi]/[tris(8-hydroxy quinoline) Al]/CsF/Al organic light-emitting devices; the thickness of the blend and NPB layers were varied systematically. The electroluminescence quantum yield decreased as the blended layer thickness increased. The NPB spacer layer reduced the exciplex formation; an 8-nm-thick layer completely suppressed it.

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Combinatorial screening of exciplex formation in blends of 4,4',4''-tris[2-naphthyl (phenyl)-amino] triphenylamine (2-TNATA), and 2,2',7,7'-tetrakis(2,2'-diphenylvinyl) spiro-9,9'-bifluorene (spiro-DPVBi)

is described. The blended layer was incorporated in ITO/[2-TNATA]/[1:1 2-TNATA:spiro-DPVBi]/[N, N' - di-Ph - N, N' - bis (1-naphthylphenyl) - 1, 1' - bi-Ph - 4, 4'-diamine (NPB)]/[spiro-DPVBi]/[tris(8-hydroxy quinoline) Al]/CsF/Al organic light-emitting devices; the thickness of the blend and NPB layers were varied systematically. The electroluminescence quantum yield decreased as the blended layer thickness increased. The NPB spacer layer reduced the exciplex formation; an 8-nm-thick layer completely suppressed it.

IT Electroluminescent devices

(OLED; combinatorial study of exciplex formation at interface between two wide band gap organic semiconductors)

IT Band gap

Combinatorial chemistry

Exciplex

Interface

Luminescence, electroluminescence

Semiconductor materials

(combinatorial study of exciplex formation at interface between two wide band gap organic semiconductors)

IT 296269-66-4, Spiro-DPVBi

RL: CPS (Chemical process); CUS (Combinatorial use); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); TEM (Technical or engineered material use); CMBI (Combinatorial study); PROC (Process); USES (Uses)

(Spiro-DPVBi; combinatorial study of exciplex formation at interface between two wide band gap organic semiconductors)

L5 ANSWER 13 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:610306 HCAPLUS

DN 145:258960

TI Synthesis and Properties of a Novel Electrochromic Polymer Obtained from the Electropolymerization of a 9,9'-Spirobifluorene-Bridged Donor-Acceptor (D-A) Bichromophore System

AU Otero, Luis; Sereno, Leonides; Fungo, Fernando; Liao, Yuan-Li; Lin, Chi-Yen; Wong, Ken-Tsung

CS Departamento de Quimica, Universidad Nacional de Rio Cuarto, Rio Cuarto, 5800, Argent.

SO Chemistry of Materials (2006), 18(15), 3495-3502

CODEN: CMATEX; ISSN: 0897-4756

PB American Chemical Society

DT Journal

LA English

AB The synthesis and photophys., electrochem., and spectroelectrochem. characterization of a novel donor-acceptor (D-A) bichromophore system composed of two D-A segments linking through a spiro center are reported. The electron-donating (D) moieties are triphenylamine (TPA) groups, whereas the electron-withdrawing (A) moieties are cyano groups. The particular "spiro" configuration that perpendicularly bonds the D-A chromophores by a tetrahedral carbon, impedes orbital interactions between the branches. Thus, the two TPA substituents act independently, rendering an efficient electropolymn. process feasible. The polymer film obtained showed reversible electrochem. oxidation accompanied by strong color changes with high coloration efficiency and contrast ratio, which can be switched by potential modulation. The remarkable electrochromic behavior of the film is clearly interpreted on the basis of spectroelectrochem. studies. A plausible polymerization mechanism involved with the TPA dimerization reaction

is proposed for the electropolymn. process.

RE.CNT 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Cyclic voltammetry

Luminescence

Redox potential

UV and visible spectra  
(photophys.- and electrochem. of spirobifluorene-bridged donor-acceptor  
bichromophore and electrochromism of polymer film deposited by  
electropolymn. of this bichromophore)

IT 864957-79-9

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)  
(comparison compound; photophys.- and electrochem. of  
spirobifluorene-bridged donor-acceptor bichromophore and  
electrochromism of polymer film deposited by electropolymn. of this  
bichromophore)

IT 906067-60-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(reaction with CuCN)

IT 906067-53-6P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP  
(Preparation); RACT (Reactant or reagent)  
(synthesis and photophys.- and electrochem. of spirobifluorene-bridged  
donor-acceptor bichromophore and electrochromism of polymer film  
deposited by electropolymn. of this bichromophore)

L5 ANSWER 14 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:605383 HCAPLUS

DN 145:64146

TI Polymers with 1,1'-binaphthyl derivative repeating units and monomers for  
their preparation and their use in organic electronic devices and the  
devices

IN Buesing, Arne; Stoessel, Phillip

PA Merck Patent GmbH, Germany

SO PCT Int. Appl., 47 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006063852	A1	20060622	WO 2005-EP13610	20051216
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			

PRAI EP 2004-30093 A 20041218

OS MARPAT 145:64146

AB Polymers are described which include structural units based on  
1,1'-binaphthyl derivs.; the use of bifunctional monomers comprising  
1,1'-binaphthyl derivs. to produce the polymers is also described. The  
polymers may addnl. have repeating units comprising triplet emitters, or  
they may be used in blends addnl. comprising triplet emitters. Blends,  
formulations, and solns. including the polymers are also described. The  
use of the polymers or of blends or solns. containing them in electronic  
devices (e.g., polymer light-emitting diodes, organic FETs, organic integrated  
circuits, organic thin-film transistors, organic solar cells, organic field  
quenching devices, organic light-emitting transistors, and organic laser  
diodes)  
is also described.

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electroluminescent devices  
Field effect transistors  
Integrated circuits  
Semiconductor lasers  
Solar cells  
Thin film transistors  
(organic; polymers comprising 1,1'-binaphthyl derivative group-containing repeating units and bifunctional monomers for preparing them and their use in electronic devices)

IT Luminescent substances  
Semiconductor devices  
(polymers comprising 1,1'-binaphthyl derivative group-containing repeating units and bifunctional monomers for preparing them and their use in electronic devices)

IT 890850-21-2P 890850-23-4P 890850-24-5P 890850-25-6P  
890850-26-7P  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(polymers comprising 1,1'-binaphthyl derivative group-containing repeating units and bifunctional monomers for preparing them and their use in electronic devices)

L5 ANSWER 15 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:560457 HCAPLUS

DN 145:63387

TI Conjugated polymers containing spirobifluorene units with pure emission colors and long life cycles for organic light-emitting diodes

IN Heun, Susanne; Parham, Amir; Falcou, Aurelie

PA Merck Patent G.m.b.H., Germany

SO PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2006061181	A1	20060615	WO 2005-EP13043	20051206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
EP 1669386	A1	20060614	EP 2004-28865	20041206
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				

PRAI EP 2004-28865 A 20041206

OS MARPAT 145:63387

AB Conjugated polymers containing spirobifluorene units with pure emission colors and long life cycles for organic light-emitting diodes are prepared from the correspondent monomers, e.g., compound (I). where R = halogen, CN, OH, amine, silyl, or boron derivs., and n, m = 0,1,2,3.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electroluminescent devices  
(displays, polymer; conjugated polymers containing spirobifluorene units with pure emission colors and long life cycles for organic light-emitting diodes)

IT Luminescent screens  
(electroluminescent, polymer; conjugated polymers containing spirobifluorene units with pure emission colors and long life cycles for organic light-emitting diodes)

IT Luminescent substances  
(electroluminescent; conjugated polymers containing spirobifluorene units with pure emission colors and long life cycles for electroluminescent materials)

IT 890318-47-5P 890318-48-6P  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(conjugated polymers containing spirobifluorene units with pure emission colors and long life cycles for organic light-emitting diodes)

IT 847800-49-1P 890318-49-7P  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(control; conjugated polymers containing spirobifluorene units with pure emission colors and long life cycles for organic light-emitting diodes)

L5 ANSWER 16 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:494671 HCAPLUS

DN 145:344634

TI Highly efficient OLEDs on ITO-free polymeric substrates

AU Fehse, Karsten; Walzer, Karsten; He, Gufeng; Pfeiffer, Martin; Leo, Karl; Loevenich, Wilfried; Elschner, Andreas

CS Institut für Angewandte Photophysik, Technische Univ. Dresden, Dresden, D-01062, Germany

SO Proceedings of SPIE-The International Society for Optical Engineering (2006), 6192(Organic Optoelectronics and Photonics II), 61921Z/1-61921Z/6  
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

AB Standard organic light emitting diodes (OLEDs) are usually bottom-emitting, i.e.

they emit light through a transparent and elec. conductive substrate. Usually, indium tin oxide (ITO) is used for this purpose. However, as indium is a very expensive metal, replacing it is of vital interest for cheap OLED mass production, especially when it comes to lighting applications.

We

suggest the use of a polymer instead of ITO, carrying out both hole transport and injection. In contrast to conventional approaches, which use a conductive polymer on top of ITO as smoothening and hole injection layer, we employ solely a highly conductive polymer in combination with an OLED comprising doped charge transport layers. This allows us to renounce the ITO layer underneath. We use a new, highly conductive formulation of PEDOT:PSS, called Baytron PH 500, with a conductivity of typically 500 S/cm, providing a smooth and elec. well-conductive substrate for the OLED stack. The use of such a polymeric injection layer and of a doped small-mol. OLED stack results in a low operating voltage of the devices. The charge transport layers of the OLED consist of MeO-TPD (N,N,N',N'-tetrakis(4-methoxyphenyl)-benzidine) doped with a low percentage of F4-TCNQ (2,3,5,6-tetrafluoro-7,7,8,8-tetracyano-quinodimethane) for the hole transport layer and of Bphen (4,7-diphenyl-1,10-phenanthroline) co-evaporated with Caesium for the electron transport layer. We demonstrate both fluorescent and phosphorescent monochromic OLEDs based on Baytron PH 500 which achieve good efficiencies. The OLEDs made on Baytron PH 500 are compared with devices made on an ITO anode. Although the polymer possesses a somewhat lower conductivity than ITO, efficient devices can be

fabricated. For example, using the blue emitter Spiro-DPVBi (2,2',7,7'-tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene), we achieve an efficiency of up to 5.1 cd/A. As another example, we discuss green OLEDs based on the triplet emitter Ir(ppy)<sub>3</sub> (fac tris(2-phenylpyridine) iridium) doped in a wide gap material. In this case, even a higher efficiency than on ITO is reached: 62 cd/A at a luminance of 100 cd/m<sup>2</sup>, corresponding to an increase in external quantum efficiency by 15% as compared to ITO.

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electroluminescent devices  
(organic; highly efficient organic light emitting diodes on indium tin oxide-free polymeric substrates)  
IT 155090-83-8, Poly(3,4-ethylenedioxythiophene)poly(styrenesulfonate)  
192198-85-9, TPBi 296269-66-4, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene 606126-02-7  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(highly efficient organic light emitting diodes on indium tin oxide-free polymeric substrates)

L5 ANSWER 17 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:494642 HCAPLUS

DN 145:344622

TI High-efficiency white organic-light-emitting diodes combining fluorescent and phosphorescent emitter systems

AU Schwartz, Gregor; Walzer, Karsten; Pfeiffer, Martin; Leo, Karl

CS Institut für Angewandte Photophysik, Technische Univ. Dresden, Dresden, 01069, Germany

SO Proceedings of SPIE-The International Society for Optical Engineering (2006), 6192(Organic Optoelectronics and Photonics II), 61920Q/1-61920Q/6  
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

AB We report on white organic light emitting diodes with three stacked emitter layers comprising the fluorescent blue emitter Spiro-DPVBi, the phosphorescent green emitter system TCTA:Ir(ppy)<sub>3</sub> and the phosphorescent red emitter system NPB:Ir(MDQ)<sub>2</sub>(acac). A thin addnl. layer of mixed TCTA and TPBi separates the fluorescent and phosphorescent emitting regions, simultaneously confining excitons efficiently and letting electrons and holes easily pass. Furthermore, phosphorescence quenching by Dexter transfer to the non-radiative triplet state of Spiro-DPVBi is suppressed. Devices were optimized to get color coordinates very close to the warm white standard illuminant A. Best devices have a current efficiency of 13.8 cd/A, CIE color coordinates of (0.45, 0.42), and a color rendering index of 91 at a brightness of 1000 cd/m<sup>2</sup>. Due to the use of elec. doped charge transport layers, the voltage needed for 1000 cd/m<sup>2</sup> was only 3.0 V, which leads to a power efficiency of 14.4 lm/W assuming Lambertian emission.

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electric current-potential relationship  
Energy level  
Luminescence, electroluminescence  
(high efficiency white organic light emitting diodes combining fluorescent and phosphorescent emitter systems)  
IT Electroluminescent devices  
(organic; high efficiency white organic light emitting diodes combining fluorescent and phosphorescent emitter systems)  
IT 192198-85-9, TPBi 296269-66-4, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(high efficiency white organic light emitting diodes combining fluorescent and phosphorescent emitter systems)

L5 ANSWER 18 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:469746 HCAPLUS

DN 144:477360

TI Organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer

IN Lee, Jun-Yeob; Chun, Min-Seung; Choi, Yong-Joong

PA S. Korea

SO U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2006105201	A1	20060518	US 2005-268477	20051108
	KR 2006045225	A	20060517	KR 2004-92637	20041112
	JP 2006140434	A	20060601	JP 2005-169945	20050609
	CN 1773746	A	20060517	CN 2005-10117757	20051110
PRAI	KR 2004-92637	A	20041112		

OS MARPAT 144:477360

AB An organic electroluminescent (EL) device has a light emitting layer composed of at least one phosphorescent dopant disposed between a first electrode and a second electrode; and a blue light emitting layer contacting the light emitting layer, wherein the light emitting layer has a hole transport material and an electron transport material as a host. Thus, e.g., the OLED comprising: hole injection layer (IDE 406, 30 nm), hole transport layer (IDE 320, 30 nm), host material (90 parts by weight CBP, 10 parts by weight BALq) doped with dopant [(1-phenylisoquinoline)iridium(III) acac (Ir(piq)2acac), 10% by weight] layered to a thickness of 35 nm on the hole transport layer and patterned using LITI to obtain a phosphorescent light-emitting layer, a blue light-emitting layer composed of IDE 140 doped with IDE 105 formed to a thickness of 10 nm on the entire surface, an electron transport layer (Alq3, 20 nm on the blue emitting layer), and a cathode had a light efficiency (cd/A) of 5.7, color coordinate (0.67, 0.32) and lifetime of 500 h vs. light efficiency of 4.6, color coordinate (0.67, 0.32) and lifetime of 150 h for the comparative device: hole injection layer and hole transport layer as above, host material (CBP) doped with dopant [Ir(piq)2acac, 10% by weight] layered to a thickness of 35 nm on the hole transport layer and patterned using LITI to obtain a light-emitting layer, hole blocking layer (BALq, 5 nm), electron transport layer (Alq3), and cathode. In the OLED of the invention, a blue light-emitting layer is formed on a phosphorescent light-emitting layer with the following advantages: a hole blocking layer is not required, micro-patterning for forming blue region is not required, color mixing between the common blue light emitting layer and the R and G layers can be prevented, and a 30% higher efficiency and 200% longer lifetime.

TI Organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer

AB An organic electroluminescent (EL) device has a light emitting layer composed of at least one phosphorescent dopant disposed between a first electrode and a second electrode; and a blue light emitting layer contacting the light emitting layer, wherein the light emitting layer has a hole transport material and an electron transport material as a host. Thus, e.g., the OLED comprising: hole injection layer (IDE 406, 30 nm), hole transport layer (IDE 320, 30 nm), host material (90 parts by weight CBP, 10 parts by weight BALq) doped with dopant [(1-phenylisoquinoline)iridium(III) acac (Ir(piq)2acac), 10% by weight] layered to a thickness of 35 nm on the hole transport layer and patterned using LITI to obtain a phosphorescent

light-emitting layer, a blue light-emitting layer composed of IDE 140 doped with IDE 105 formed to a thickness of 10 nm on the entire surface, an electron transport layer (Alq<sub>3</sub>, 20 nm on the blue emitting layer), and a cathode had a light efficiency (cd/A) of 5.7, color coordinate (0.67, 0.32) and lifetime of 500 h vs. light efficiency of 4.6, color coordinate (0.67, 0.32) and lifetime of 150 h for the comparative device: hole injection layer and hole transport layer as above, host material (CBP) doped with dopant [Ir(piq)2acac, 10% by weight] layered to a thickness of 35 nm on the hole transport layer and patterned using LITI to obtain a light-emitting layer, hole blocking layer (BALq, 5 nm), electron transport layer (Alq<sub>3</sub>), and cathode. In the OLED of the invention, a blue light-emitting layer is formed on a phosphorescent light-emitting layer with the following advantages: a hole blocking layer is not required, micro-patterning for forming blue region is not required, color mixing between the common blue light emitting layer and the R and G layers can be prevented, and a 30% higher efficiency and 200% longer lifetime.

IT Electroluminescent devices

(organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT Poly(arylenealkenylenes)

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 435294-03-4, Ir(piq)2acac

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(Ir(piq)2acac, phosphorescent dopant; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 852201-29-7, IDE 140

RL: DEV (Device component use); USES (Uses)

(blue light-emitting layer; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 397844-59-6, IDE 105

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(dopant in blue light-emitting layer; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 2085-33-8, Alq<sub>3</sub>

RL: DEV (Device component use); USES (Uses)

(electron transport layer; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 92-69-3D, p-Phenylphenol, metal complexes 108-95-2D, Phenol, metal complexes 148-24-3D, 8-Hydroxyquinoline, metal complexes 159-66-0D, Spirobifluorene, Ph, biphenyl, and Me derivs. 826-81-3D, 2-Methyl-8-hydroxyquinoline, metal complexes 7429-90-5D, Aluminum, quinolato phenoxy complexes 7440-41-7D, Beryllium, quinolato phenoxy complexes 7440-55-3D, Gallium, quinolato phenoxy complexes 7440-66-6D, Zinc, quinolato phenoxy complexes 15082-28-7, 2-(4-Biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole 16152-10-6, 4-(1-Naphthyl)-3,5-diphenyl-1,2,4-triazole 18343-40-3, 2,4,6-Tris(diphenylamino)-1,3,5-triazine 31274-51-8 42731-96-4, 2-(2-Hydroxyphenyl)quinoline 134984-37-5, 2,4,6-Tricarbazolo-1,3,5-triazine 683278-68-4, 2,4,6-Tris[(2-



naphthyl)phenylamino]-1,3,5-triazine 683278-69-5, 2,4,6-Tris[(1-naphthyl)phenylamino]-1,3,5-triazine

IT 1608-30-6 142289-08-5, DPVBi  
 RL: DEV (Device component use); USES (Uses)  
 (electron-transport material; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer).

IT 627090-84-0, IDE 406  
 RL: DEV (Device component use); USES (Uses)  
 (hole injection layer; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 627090-85-1, IDE 320  
 RL: DEV (Device component use); USES (Uses)  
 (hole transport layer; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 25067-59-8, Polyvinylcarbazole 139092-78-7 148044-07-9, 1,3,5-Tri-(9-carbazolyl)benzene 550378-78-4, 1,3-Di-(9-carbazolyl)benzene 604785-54-8 872143-44-7 872143-45-8 872143-46-9  
 RL: DEV (Device component use); USES (Uses)  
 (hole-transport material; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 58328-31-7, CBP 146162-54-1, BALq  
 RL: DEV (Device component use); USES (Uses)  
 (host material; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 26009-24-5, Poly(p-phenylenevinylene) 195456-48-5, Poly(9,9-dioctyl-9H-fluorene-2,7-diyl)  
 RL: DEV (Device component use); USES (Uses)  
 (host; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 337526-88-2 343978-78-9 343978-79-0 435293-93-9, Tris(1-phenylisoquinoline)iridium 886017-22-7 886017-29-4 886017-37-4  
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
 (phosphorescent dopant; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 171408-93-8, Spiro-6P  
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
 (spiro-6P, fluorescent dopant; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 296269-66-4, Spiro-DPVBi  
 RL: DEV (Device component use); MOA (Modifier or additive use); USES

(Uses)

(spiro-DPVB<sub>i</sub>, fluorescent dopant; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

IT 693794-98-8, Tris(2-phenylpyridine)iridium

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(tris(2-phenylpyridine)iridium, phosphorescent dopant; organic electroluminescent device comprising two light-emitting layers with a portion of the second light-emitting layer extending continuously over the first light-emitting layer)

L5 ANSWER 19 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:343128 HCAPLUS

DN 144:391623

TI Electronic devices containing organic semiconductors with low halogen content

IN Spreitzer, Hubert; Falcou, Aurelie; Scheurich, Rene; Schulte, Niels; Buesing, Arne; Stoessel, Philipp

PA Merck Patent GmbH, Germany

SO PCT Int. Appl., 31 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006037458	A1	20060413	WO 2005-EP10112	20050920
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	EP 1794218	A1	20070613	EP 2005-784377	20050920
	R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR				
PRAI	EP 2004-23475	A	20041001		
	WO 2005-EP10112	W	20050920		

AB The invention relates to electronic devices containing organic semiconductors with a halogen content < 20 ppm. As a result, the service life and efficiency of the corresponding electronic devices is increased, and such materials are more suitable for use in organic electronic devices than materials having higher halogen content. In one embodiment, low mol. weight organic or polymeric semiconductors are obtained by coupling reactions involving reactive halogens, followed by optional isolation of the semiconductors, and treatment with a reducing agent until the halogen content is < 20 ppm.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Conducting polymers

Electroluminescent devices

Field effect transistors

Integrated circuits

Semiconductor devices

Semiconductor lasers

Semiconductor materials

Solar cells

Thin film transistors

(electronic devices containing organic semiconductors with low halogen content)

IT 847800-49-1DP, ditolylaminophenyl- and dibutoxyphenyl-terminated  
882567-06-8DP, ditolylaminophenyl- and dibutoxyphenyl-terminated  
882567-07-9DP, ditolylaminophenyl- and dibutoxyphenyl-terminated  
RL: DEV (Device component use); IMF (Industrial manufacture); PUR  
(Purification or recovery); PREP (Preparation); USES (Uses)  
(electronic devices containing organic semiconductors with low halogen content)

L5 ANSWER 20 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:340658 HCAPLUS

DN 144:378739

TI Organic electroluminescent devices employing a blue-emitting material in the hole-transporting layer

IN Jeong, Hye-In; Song, Ok-Keun; Koo, Young-Mo; Kim, Tae-Shick

PA S. Korea

SO U.S. Pat. Appl. Publ., 10 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2006078759	A1	20060413	US 2005-191017	20050728
	KR 2006032097	A	20060414	KR 2004-81112	20041011
	CN 1780510	A	20060531	CN 2005-10108565	20051011
PRAI	KR 2004-81112	A	20041011		

AB Organic electroluminescent devices are described which comprise a first electrode, a hole transport layer comprising a hole transporting material and a blue emission material formed on the first electrode, an emission layer formed on the hole transport layer, and a second electrode formed on the emission layer. The hole transport layer comprising the blue emission material and the hole transporting material provides the organic electroluminescent device with a longer lifespan while maintaining luminous efficiency, a low driving voltage, and an improved color coordinate.

TI Organic electroluminescent devices employing a blue-emitting material in the hole-transporting layer

AB Organic electroluminescent devices are described which comprise a first electrode, a hole transport layer comprising a hole transporting material and a blue emission material formed on the first electrode, an emission layer formed on the hole transport layer, and a second electrode formed on the emission layer. The hole transport layer comprising the blue emission material and the hole transporting material provides the organic electroluminescent device with a longer lifespan while maintaining luminous efficiency, a low driving voltage, and an improved color coordinate.

ST org electroluminescent device OLED

IT Electroluminescent devices

(organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 16756-03-9, AZM-Zn

RL: DEV (Device component use); USES (Uses)

(AZM-Zn, blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 7128-64-5

RL: DEV (Device component use); USES (Uses)

(BBOT, blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 869654-26-2, CzTT  
 RL: DEV (Device component use); USES (Uses)  
 (CzTT, blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 13280-61-0, DST  
 RL: DEV (Device component use); USES (Uses)  
 (DST, blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 296269-66-4, Spiro-DPVBi  
 RL: DEV (Device component use); USES (Uses)  
 (Spiro-DPVBi, blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 89114-91-0, TPA  
 RL: DEV (Device component use); USES (Uses)  
 (TPA, blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 1450-63-1  
 RL: DEV (Device component use); USES (Uses)  
 (TPB, blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 882494-66-8, BH 013X  
 RL: DEV (Device component use); USES (Uses)  
 (blue emission host; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 120-12-7, Anthracene, uses 2519-10-0, PPCP 138372-68-6, OXD 4  
 186412-15-7 376367-93-0, FIrpic 873814-26-7  
 RL: DEV (Device component use); USES (Uses)  
 (blue-emitting layer containing; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato)  
 RL: DEV (Device component use); USES (Uses)  
 (electron-transporting layer; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 27425-55-4 200052-70-6, DCJTB 863646-26-8, BD 102 882494-70-4, BD 52  
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
 (emitting dopant; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 852201-29-7, IDE 140  
 RL: DEV (Device component use); USES (Uses)  
 (emitting host; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 627090-84-0, IDE 406  
 RL: DEV (Device component use); USES (Uses)  
 (hole injection layer; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

IT 65181-78-4 123847-85-8, N,N'-Diphenyl-N,N'-bis(1-naphthyl)[1,1'-biphenyl]-4,4'-diamine  
 RL: DEV (Device component use); USES (Uses)  
 (hole-transporting layer; organic electroluminescent devices employing blue-emitting material in hole-transporting layer)

L5 ANSWER 21 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2006:298099 HCAPLUS  
 DN 144:340466  
 TI White organic light-emitting devices with three emission layers and having a white balancing layer and an exciton confinement structure  
 IN Park, Jong-Wook; Park, Ho-Cheol  
 PA Doosan Corporation, S. Korea  
 SO PCT Int. Appl., 42 pp.  
 CODEN: PIXXD2  
 DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006033492	A1	20060330	WO 2004-KR2438	20040922
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRAI WO 2004-KR2438 20040922

AB The present invention relates to white organic light emitting devices including a substrate, an anode, a hole injecting layer, a hole transporting layer, red, green, and blue emission layers, a white balancing layer, an electron transporting layer, and a cathode deposited on the substrate. In this structure, since it is possible to control the emission ratio of the three-color emission layers, excitons which do not contribute to blue light emission contribute to yellow or red light emission. Green light emission is enhanced by an exciton confinement effect. As a result, all three-color layers contribute to generation of white light with high efficiency. Furthermore, by using the white balancing layer, it is possible to control the emission ratio of the plurality of emission layers to extremely enhance efficiency of emission of white light.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

ST org electroluminescent device exciton confinement structure  
white balancing OLED

IT Electroluminescent devices  
(white-emitting; white organic light-emitting devices with three emission layers and having white balancing layer and exciton confinement structure)

IT 2085-33-8, Aluminum tris(8-hydroxyquinolinato) 58328-31-7,  
4,4'-Bis(carbazol-9-yl)biphenyl 142289-08-5 213527-39-0  
296269-66-4

RL: DEV (Device component use); USES (Uses)  
(host in emitting layer; white organic light-emitting devices with three emission layers and having white balancing layer and exciton confinement structure)

L5 ANSWER 22 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:208377 HCAPLUS

DN 144:458112

TI High-Efficiency Polymer Light-Emitting Diodes Using Neutral Surfactant  
Modified Aluminum Cathode

AU Niu, Yu-Hua; Jen, Alex K.-Y.; Shu, Chingfong

CS Department of Materials Science and Engineering, University of Washington,  
Seattle, WA, 98195, USA

SO Journal of Physical Chemistry B (2006), 110(12), 6010-6014  
CODEN: JPCBFK; ISSN: 1520-6106

PB American Chemical Society

DT Journal

LA English

AB High-efficiency polymer light-emitting diodes were fabricated by inserting a layer of nonionic neutral surfactant between the electroluminescent (EL) layer and the high-work-function Al cathode via spin coating. Both the poly(ethylene glycol)- and

poly(propylene glycol)-based surfactants as well as their copolymers can all demonstrate similar performance enhancement. Device performances comparable to or even better than those of the control devices using Ca as the cathode were achieved for both poly(p-phenylene)-based and polyfluorene-based conjugated polymers with orange-red, green, and blue emission colors. It is possible that when both surfactant and Al are used as the cathode, the abundant hole injection through a hole-transporting layer and hole pile-up at the inner side of the EL/surfactant interface might cause an effective elec. field to induce the realignment of the dipole moment of those polar surfactant mols., thus lowering the barrier for electron injection. The coordination between the Al and O atoms on the surfactant might cause n-type doping in the areas near surfactant in the EL polymer layer that causes the enhancement of electron injection.

RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

- AB High-efficiency polymer light-emitting diodes were fabricated by inserting a layer of nonionic neutral surfactant between the electroluminescent (EL) layer and the high-work-function Al cathode via spin coating. Both the poly(ethylene glycol)- and poly(propylene glycol)-based surfactants as well as their copolymers can all demonstrate similar performance enhancement. Device performances comparable to or even better than those of the control devices using Ca as the cathode were achieved for both poly(p-phenylene)-based and polyfluorene-based conjugated polymers with orange-red, green, and blue emission colors. It is possible that when both surfactant and Al are used as the cathode, the abundant hole injection through a hole-transporting layer and hole pile-up at the inner side of the EL/surfactant interface might cause an effective elec. field to induce the realignment of the dipole moment of those polar surfactant mols., thus lowering the barrier for electron injection. The coordination between the Al and O atoms on the surfactant might cause n-type doping in the areas near surfactant in the EL polymer layer that causes the enhancement of electron injection.
- IT Electroluminescent devices  
(blue-emitting; high-efficiency polymer LEDs using neutral surfactant-modified aluminum cathode)
- IT Electroluminescent devices  
(green-emitting; high-efficiency polymer LEDs using neutral surfactant-modified aluminum cathode)
- IT 112-92-5, 1-Octadecanol 593-45-3, Octadecane 9004-95-9, Poly(ethylene glycol) hexadecyl ether 24938-91-8 50926-11-9, ITO 138184-36-8, MEH-PPV 877680-28-9 885601-23-0
- RL: DEV (Device component use); USES (Uses)  
(in high-efficiency polymer LEDs using neutral surfactant-modified aluminum cathode)

L5 ANSWER 23 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:100882 HCAPLUS

DN 144:159978

TI Organic electroluminescent devices with green-emitting layers incorporating green- and blue-emitting materials

IN Jeong, Hye-In; Song, Ok-Keun; Koo, Young-Mo; Lee, Yong-Han

PA S. Korea

SO U.S. Pat. Appl. Publ., 18 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2006024525	A1	20060202	US 2005-188658	20050726
	KR 2006011066	A	20060203	KR 2004-59737	20040729
	CN 1728902	A	20060201	CN 2005-10065278	20050415
PRAI	KR 2004-59737	A	20040729		

AB Organic electroluminescent devices are described which comprise an organic green emission layer comprising a green emission material and a blue emission material interposed between a pair of electrodes. More specifically, the devices may comprise a first electrode; a hole transport layer formed on the first electrode; a green emission layer comprising a green emission material and a blue emission material and formed on the hole transport layer; an electron transport layer formed on the green emission layer; and a second electrode formed on the electron transport layer.

TI Organic electroluminescent devices with green-emitting layers incorporating green- and blue-emitting materials

AB Organic electroluminescent devices are described which comprise an organic green emission layer comprising a green emission material and a blue emission material interposed between a pair of electrodes. More specifically, the devices may comprise a first electrode; a hole transport layer formed on the first electrode; a green emission layer comprising a green emission material and a blue emission material and formed on the hole transport layer; an electron transport layer formed on the green emission layer; and a second electrode formed on the electron transport layer.

ST org electroluminescent device blue green emitting material mixt

IT Electroluminescent devices  
(green-emitting, organic; organic electroluminescent devices with green-emitting layers incorporating green- and blue-emitting materials)

IT 120-12-7, Anthracene, uses 1450-63-1, TPB 2519-10-0, PPCP 7128-64-5, BBOT 13280-61-0 16756-03-9 89114-91-0 138372-68-6 186412-15-7 296269-66-4 376367-93-0, FIrpic 869654-26-2 873814-26-7  
RL: DEV (Device component use); USES (Uses)  
(blue-emitting material; organic electroluminescent devices with green-emitting layers incorporating green- and blue-emitting materials)

IT 191-07-1, Coronene 2085-33-8, Tris(8-hydroxyquinolino)aluminum 14284-95-8, Tris(acetylacetonato)terbium 38215-36-0, Coumarin 6 91175-19-8 138372-66-4 138372-70-0  
RL: DEV (Device component use); USES (Uses)  
(green-emitting material; organic electroluminescent devices with green-emitting layers incorporating green- and blue-emitting materials)

IT 27425-55-4 113869-06-0, C314T 155306-71-1, C545T 457888-83-4 457888-84-5 457888-85-6 457888-86-7  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(organic electroluminescent devices with green-emitting layers incorporating green- and blue-emitting materials)

L5 ANSWER 24 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:53697 HCAPLUS

DN 144:150137

TI Oligomeric derivatives of spirobifluorene, their preparation and use as electroluminescent materials for molecular electronic devices

IN Bagala Rampazzo, Liliana; Fioravanti, Giulia; Mattiello, Leonardo

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 23 pp.  
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006005627	A1	20060119	WO 2005-EP7746	20050715
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA,				

NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,  
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU,  
ZA, ZM, ZW

RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,  
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM

EP 1765756 A1 20070328 EP 2005-763646 20050715

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,  
IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR

PRAI IT 2004-RM352 A 20040715

WO 2005-EP7746 W 20050715

OS CASREACT 144:150137; MARPAT 144:150137

AB Oligomeric derivs. of spirobifluorene are disclosed, as well as their preparation and (no data) use in the field of mol. electronics. Five example compds. were prepared (where R = 9,9'-spirobi[9H-fluorene]-2-yl): trans-RCOCH:CHCOR (I), 1,3-C<sub>6</sub>H<sub>4</sub>(COR)<sub>2</sub> (II), 1,4-C<sub>6</sub>H<sub>4</sub>(COR)<sub>2</sub> (III), 1,3,5-C<sub>6</sub>H<sub>3</sub>(COR)<sub>3</sub> (IV), and spirotruxene (V). Claimed uses include organic electroluminescence, particularly for OLEDs, especially blue-light OLEDs and triplet-state emitters, mol. switching components, nonlinear optics, mol.-based computational systems, field-effect transistors, neg. differential resistance semiconductors, as mol. magnets, in mol. biol., and in nanotechnologies. Compds. I, II, III, and IV were all prepared by Friedel-Crafts acylation of 9,9'-spirobifluorene with either fumaryl chloride, isophthaloyl chloride, terephthaloyl chloride, or 1,3,5-benzenetricarbonyl chloride, using AlCl<sub>3</sub> in CH<sub>2</sub>Cl<sub>2</sub> at 15° to room temperature. Spirotruxene V was prepared in 78% yield by lithiation of 2-bromobiphenyl with BuLi, reaction of the obtained organolithium (in excess) with the triketone truxenone, and cyclization of the isomeric product mixture with HCl in refluxing AcOH. Radical anions and the corresponding E° values were determined as follows (V vs. SCE): cis-RCH:CHR (comparison compound from EP 882082) -1.95, I -1.18, II -1.50, III -1.40, IV -1.48, and V -2.55 V.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Oligomeric derivatives of spirobifluorene, their preparation and use as electroluminescent materials for molecular electronic devices

AB Oligomeric derivs. of spirobifluorene are disclosed, as well as their preparation and (no data) use in the field of mol. electronics. Five example compds. were prepared (where R = 9,9'-spirobi[9H-fluorene]-2-yl): trans-RCOCH:CHCOR (I), 1,3-C<sub>6</sub>H<sub>4</sub>(COR)<sub>2</sub> (II), 1,4-C<sub>6</sub>H<sub>4</sub>(COR)<sub>2</sub> (III), 1,3,5-C<sub>6</sub>H<sub>3</sub>(COR)<sub>3</sub> (IV), and spirotruxene (V). Claimed uses include organic electroluminescence, particularly for OLEDs, especially blue-light OLEDs and triplet-state emitters, mol. switching components, nonlinear optics, mol.-based computational systems, field-effect transistors, neg. differential resistance semiconductors, as mol. magnets, in mol. biol., and in nanotechnologies. Compds. I, II, III, and IV were all prepared by Friedel-Crafts acylation of 9,9'-spirobifluorene with either fumaryl chloride, isophthaloyl chloride, terephthaloyl chloride, or 1,3,5-benzenetricarbonyl chloride, using AlCl<sub>3</sub> in CH<sub>2</sub>Cl<sub>2</sub> at 15° to room temperature. Spirotruxene V was prepared in 78% yield by lithiation of 2-bromobiphenyl with BuLi, reaction of the obtained organolithium (in excess) with the triketone truxenone, and cyclization of the isomeric product mixture with HCl in refluxing AcOH. Radical anions and the corresponding E° values were determined as follows (V vs. SCE): cis-RCH:CHR (comparison compound from EP 882082) -1.95, I -1.18, II -1.50, III -1.40, IV -1.48, and V -2.55 V.

ST spirobifluorene ketone oligomer spirotruxene prepn  
electroluminescent material; Friedel Crafts acylation  
spirobifluorene fumaryl isophthaloyl terephthaloyl benzenetricarbonyl  
chloride; OLED nonlinear optical mol electronic device FET spirobifluorene  
IT Radical ions



(anions; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Nanotechnology  
(compds. in relation to; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Luminescent substances  
(electroluminescent; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Biology  
(mol., compds. in relation to; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Semiconductor materials  
(neg.-differential resistance; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Friedel-Crafts reaction  
(of spirobifluorene; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Electroluminescent devices  
(organic; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Field effect transistors

Magnetic materials

Molecular electronic devices

Nonlinear optical materials  
(preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT Aromatic hydrocarbons, preparation

Spiro compounds

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT 874099-75-9

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(comparison compound; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT 159-66-0DP, 9,9'-Spirobifluorene, oligomeric derivs. 862429-51-4P, Spirotruxene 874099-71-5P 874099-72-6P 874099-73-7P 874099-74-8P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(example compound; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

IT 99-63-8, 1,3-Benzenedicarbonyl dichloride 100-20-9, 1,4-Benzenedicarbonyl dichloride 159-66-0, 9,9'-Spirobi[9H-fluorene] 627-63-4 2052-07-5, 2-Bromobiphenyl 4422-95-1, 1,3,5-Benzenetricarbonyl trichloride 4430-15-3

RL: RCT (Reactant); RACT (Reactant or reagent)  
(starting material; preparation of spirobifluorene oligomer derivs. as electroluminescent materials for mol. electronic devices)

L5 ANSWER 25 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:24271 HCAPLUS

DN 144:477157

TI Organic semiconductor distributed feedback lasers

AU Kowalsky, W.; Rabe, T.; Schneider, D.; Johannes, H.-H.; Karnutsch, C.; Gerken, M.; Lemmer, U.; Wang, J.; Weimann, T.; Hinze, P.; Riedl, T.

CS Institut für Hochfrequenztechnik, Technische Univ. Braunschweig, Braunschweig, 38106, Germany

SO. Proceedings of SPIE-The International Society for Optical Engineering  
(2005), 6008(Nanosensing: Materials and Devices II), 60080Z/1-60080Z/15  
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

AB Compared to well established liquid based dye lasers, amplifying media based on amorphous organic thin films allow the realization of versatile, cost effective and compact lasers. Aside from that, the materials involved are organic semiconductors, which in principle allow the fabrication of future elec. driven organic laser diodes. A highly promising, low-loss resonator geometry for these lasers is the distributed feedback (DFB) structure, which is based on a periodic modulation of the refractive index in the waveguide on the nanometer scale. By variation of the grating period  $\Lambda$  one may tune the laser emission within the gain spectrum of the amplifying medium. We will demonstrate organic lasers spanning the entire spectral region from 360-715 nm. Tuning ranges as large as 115 nm ( $\lambda = 598-713$  nm) in the red spectral region and more than 30 nm ( $\lambda = 362-394$  nm) in the UV render these novel lasers highly attractive for various spectroscopic applications. As the grating period  $\Lambda$  is typically between 100 nm and 400 nm the DFB resonators are fabricated by e-beam lithog. These gratings may, however, be used as masters to obtain an arbitrary amount of copies by nanoimprint lithog. into plastic substrates. Therefore these lasers are very attractive even for single-use applications (e.g. in medicine and biotechnol.). Today, the key challenge in the field is the realization of the first elec. driven organic laser. Key pre-requisites are highly efficient amplifying material systems which allow for low threshold operation and charge transport materials that bring about the stability to sustain the necessary current densities, several orders of magnitude higher than in OLEDs. We will demonstrate diode structures operated elec. under pulsed conditions at current densities up to 760 A/cm<sup>2</sup> with a product of the c.d. and the external quantum efficiency ( $J \cdot \eta_{\text{ext}}$ ) of 1.27 A/cm<sup>2</sup>. Mechanisms deteriorating the quantum efficiency at elevated current densities will be discussed.

RE.CNT 63 THERE ARE 63 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Doping

Luminescence

Semiconductor lasers

UV and visible spectra

(organic semiconductor distributed feedback lasers spanning entire spectral region from 360-715 nm)

IT Electroluminescent devices

(organic; organic semiconductor distributed feedback lasers spanning entire spectral region from 360-715 nm)

IT Luminescence

(spontaneous, amplified; organic semiconductor distributed feedback lasers spanning entire spectral region from 360-715 nm)

IT 51325-95-2 144810-07-1 296269-66-4, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9-9'-bifluorene

RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(dopant; organic semiconductor distributed feedback lasers spanning entire spectral region from 360-715 nm)

L5 ANSWER 26 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:13624 HCAPLUS

DN 144:117443

TI Organic electroluminescent device

IN Vestweber, Horst; Stoessel, Philipp; Gerhard, Anja; Parham, Amir

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2006000388	A1	20060105	WO 2005-EP6727	20050622
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW:				
	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

DE 102004031000 A1 20060112 DE 2004-102004031000 20040626

EP 1761962 A1 20070314 EP 2005-753649 20050622

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR

PRAI DE 2004-102004031000 A 20040626

WO 2005-EP6727 W 20050622

OS MARPAT 144:117443

AB Organic electroluminescent devices comprising a cathode, an anode, and  $\geq 1$  emitting layer are described in which the emitting layer comprises a host material 1-99.9 weight % and 0.1-99 weight % of a compound described by the general formula  $A(-X-C(R):C(Y)Z)_3$  (A = N, P, As, Sb, P:O, P:S, As:O, As:S, Sb:O, or Sb:S; X = at each occurrence independently selected optionally substituted C2-60 bivalent (hetero)aryl groups; Y = at each occurrence independently selected optionally substituted C2-60 monovalent (hetero)aryl groups, with the restriction that Y does not incorporate any (un)substituted amino groups; Z = independently selected at each occurrence Y, -CN, or straight, branched, or cyclic optionally substituted C1-40 alkyl groups; R = at each occurrence independently selected from H, CN, straight, branched, or cyclic optionally substituted C1-40 alkyl groups). Compds. are also claimed in which the Y and Z groups are joined by a covalent bond or by a bivalent bridging group having up to 5 bridging atoms.

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Organic electroluminescent device

AB Organic electroluminescent devices comprising a cathode, an anode, and  $\geq 1$  emitting layer are described in which the emitting layer comprises a host material 1-99.9 weight % and 0.1-99 weight % of a compound described by the general formula  $A(-X-C(R):C(Y)Z)_3$  (A = N, P, As, Sb, P:O, P:S, As:O, As:S, Sb:O, or Sb:S; X = at each occurrence independently selected optionally substituted C2-60 bivalent (hetero)aryl groups; Y = at each occurrence independently selected optionally substituted C2-60 monovalent (hetero)aryl groups, with the restriction that Y does not incorporate any (un)substituted amino groups; Z = independently selected at each occurrence Y, -CN, or straight, branched, or cyclic optionally substituted C1-40 alkyl groups; R = at each occurrence independently selected from H, CN, straight, branched, or cyclic optionally substituted C1-40 alkyl groups). Compds. are also claimed in which the Y and Z groups are joined by a covalent bond or by a bivalent bridging group having up to 5 bridging atoms.

ST Group VA centered triple branch compd org electroluminescent device

IT Luminescent substances

(electroluminescent; organic electroluminescent devices using Group VA element-centered triple branched compds. and selected compds.)

IT Group VA element compounds

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(organic electroluminescent devices using Group VA element-centered triple branched compds. and selected compds.)

IT Electroluminescent devices

(organic; organic electroluminescent devices using Group VA element-centered triple branched compds. and selected compds.)

IT 26979-27-1 296269-66-4 723285-21-0 723285-22-1

RL: DEV (Device component use); USES (Uses)

(host; organic electroluminescent devices using Group VA element-centered triple branched compds. and selected compds.)

IT 114850-67-8P

RL: DEV (Device component use); MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(organic electroluminescent devices using Group VA element-centered triple branched compds. and selected compds.)

IT 530-48-3, 1,1-Diphenylethene 4316-58-9, Tris(4-bromophenylamine

RL: RCT (Reactant); RACT (Reactant or reagent)

(organic electroluminescent devices using Group VA element-centered triple branched compds. and selected compds.)

L5 ANSWER 27 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:1170585 HCAPLUS

DN 143:441497

TI Polymers comprising phenanthrene group-containing units and bifunctional monomers for preparing them and their use in electronic devices

IN Buesing, Arne; Heun, Susanne; Tuerk, Silke; Leske, Corinna

PA Covion Organic Semiconductors GmbH, Germany

SO PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005104264	A1	20051103	WO 2005-EP4448	20050426
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
	RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	DE 102004020298	A1	20051110	DE 2004-102004020298	20040426
	EP 1741149	A1	20070110	EP 2005-744529	20050426
	R:	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR			
	CN 1947275	A	20070411	CN 2005-80013206	20050426
PRAI	DE 2004-102004020298	A	20040426		
	WO 2005-EP4448	W	20050426		

AB Polymers are described which comprise  $\geq 5$  mol % of a repeating unit comprising a substituted phenanthrene moiety which binds to the polymer chain via (substituents at) the 2 and 7 positions. Bifunctional monomers from which the repeating units may be derived are also described. The

polymers may incorporate addnl. repeating units which may affect the emission characteristics of the polymer. The use of the polymers or of blends containing them in electronic devices (e.g., polymer organic light-emitting diodes, organic FETs, organic integrated circuits, organic thin-film transistors, organic solar cells, organic field quenching devices, and organic laser diodes) is also described.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electroluminescent devices  
Field effect transistors  
Integrated circuits  
Semiconductor lasers  
Solar cells  
Thin film transistors  
(organic; polymers comprising phenanthrene group-containing units and bifunctional monomers for preparing them and their use in electronic devices)

IT Conducting polymers  
Luminescent substances  
(polymers comprising phenanthrene group-containing units and bifunctional monomers for preparing them and their use in electronic devices)

IT 868704-98-7 868704-99-8 868705-00-4 868705-01-5  
RL: DEV (Device component use); USES (Uses)  
(polymers comprising phenanthrene group-containing units and bifunctional monomers for preparing them and their use in electronic devices)

L5 ANSWER 28 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:1170527 HCAPLUS

DN 143:441496

TI Polymers comprising planar arylamine or arylarsine or arylphosphine units and bifunctional monomers for preparing them and their use in electronic devices

IN Parham, Amir; Heun, Susanne; Falcou, Aurelie; Buesing, Arne; Pan, Junyou; Becker, Heinrich

PA Covion Organic Semiconductors GmbH, Germany

SO PCT Int. Appl., 37 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005104263	A1	20051103	WO 2005-EP4447	20050426
	W:				
	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW:				
	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 102004020299	A1	20051201	DE 2004-102004020299	20040426
	EP 1741148	A1	20070110	EP 2005-741399	20050426
	R:				
	AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR				
	CN 1947274	A	20070411	CN 2005-80013203	20050426
PRAI	DE 2004-102004020299	A	20040426		
	WO 2005-EP4447	W	20050426		

AB Conjugated or partly conjugated polymers are described which comprise  $\geq 0.1$  mol % of a repeating unit described by the general formula  $\text{Ar1-A(Ar4)-[X-A(Ar2)]}_n\text{-X-A(Ar3)-Ar5}$  (A are independently selected at each occurrence from N, P, and As; X are independently selected at each occurrence from (un)substituted bivalent planar C6-40 conjugated systems that include  $\geq 2$  arylene groups; Ar1-5 = (un)substituted (hetero)aromatic C2-40 ring systems with the restriction that Ar1 and Ar5 are not condensed ring systems when they are not directly attached to the polymer backbone, the unit being attached to the polymer backbone by  $\geq 1$  of Ar1 and Ar5; and  $n = 0, 1$ , or  $2$ ) (excepting certain specified arylene vinylene-unit containing polymers). Bifunctional monomers from which the repeating units may be derived are also described. The polymers may incorporate addnl. repeating units which may affect the morphol. or emission characteristics of the polymer, which can increase the electron-injection, hole-injection, electron-transporting, or hole-transporting capabilities of the polymer, which can emit light from a triplet state, and/or which can facilitate energy transfer from a singlet to a triplet state. The use of the polymers or of blends containing them in electronic devices (e.g., polymer organic light-emitting diodes, organic FETs, organic integrated circuits, organic thin-film transistors, organic solar cells,

organic field quenching devices, and organic laser diodes) is also described.

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electroluminescent devices  
Field effect transistors  
Integrated circuits  
Semiconductor lasers  
Solar cells  
Thin film transistors  
(organic; polymers comprising planar arylamine or arylarsine or arylphosphine units and bifunctional monomers for preparing them and their use in electronic devices)

IT Conducting polymers  
Luminescent substances  
(polymers comprising planar arylamine or arylarsine or arylphosphine units and bifunctional monomers for preparing them and their use in electronic devices)

IT 868703-42-8P 868703-43-9P 868703-44-0P 868703-45-1P  
868703-47-3P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(polymers comprising planar arylamine or arylarsine or arylphosphine units and bifunctional monomers for preparing them and their use in electronic devices)

L5 ANSWER 29 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:1026525 HCAPLUS

DN 143:335929

TI White-light-emitting organic electroluminescent device and organic electroluminescent display having the same

IN Chin, Byung-Doo; Kim, Mu-Hyun; Lee, Seong-Taek; Yang, Nam-Choul; Suh, Min-Chul; Duan, Lian

PA S. Korea

SO U.S. Pat. Appl. Publ., 9 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005208332	A1	20050922	US 2005-81764	20050317
	KR 2005092932	A	20050923	KR 2004-18121	20040317

CN 1671260                      A            20050921            CN 2005-10055131            20050317  
PRAI KR 2004-18121                A            20040317

AB White-light-emitting organic electroluminescent devices comprising a first electrode; a second electrode; and an emitting layer interposed between the first electrode and the second electrode are described in which the emitting layer has a stacked structure including a polymer emitting layer and a small-mol. emitting layer. Electroluminescent displays employing the devices in combination with color filters are also described.

TI White-light-emitting organic electroluminescent device and organic electroluminescent display having the same

AB White-light-emitting organic electroluminescent devices comprising a first electrode; a second electrode; and an emitting layer interposed between the first electrode and the second electrode are described in which the emitting layer has a stacked structure including a polymer emitting layer and a small-mol. emitting layer. Electroluminescent displays employing the devices in combination with color filters are also described.

ST white org electroluminescent device polymer small mol hybrid layer

IT Electroluminescent devices  
(displays; white-light-emitting organic electroluminescent devices with polymer-small mol. hybrid emitting layers and organic electroluminescent displays using them)

IT Luminescent screens  
(electroluminescent; white-light-emitting organic electroluminescent devices with polymer-small mol. hybrid emitting layers and organic electroluminescent displays using them)

IT Conducting polymers  
(polythiophenes; white-light-emitting organic electroluminescent devices with polymer-small mol. hybrid emitting layers and organic electroluminescent displays using them)

IT Electroluminescent devices  
(white-light-emitting organic electroluminescent devices with polymer-small mol. hybrid emitting layers and organic electroluminescent displays using them)

IT Poly(arylenealkenylenes)  
Polyphenyls  
RL: DEV (Device component use); USES (Uses)  
(white-light-emitting organic electroluminescent devices with polymer-small mol. hybrid emitting layers and organic electroluminescent displays using them)

IT 198-55-0D, Perylene, derivs. 1608-30-6 1608-30-6D, derivs. 5694-20-2D, Styrylamine, derivs. 25013-01-8, Polypyridine 25190-62-9, Poly p-phenylene 31248-39-2 54227-96-2D, Distyrylbiphenyl, derivs. 58328-31-7 58328-31-7D, derivs. 95270-88-5D, Polyfluorene, derivs. 96638-49-2, Poly phenylenevinylene 142289-08-5, 4,4'-Bis(2,2-diphenylvinyl)-1,1'-biphenyl 142289-08-5D, 4,4'-Bis(2,2-diphenylvinyl)-1,1'-biphenyl, derivs. 171408-93-8, 2,2', 7,7'-Tetrakis(biphenyl-4-yl)-9,9'-spirobifluorene 296269-66-4 337526-88-2 337526-95-1 449727-92-8 526201-66-1 550378-78-4, N,N'-Dicarbazolyl-3,5-benzene 550378-78-4D, N,N'-Dicarbazolyl-3,5-benzene, derivs. 716350-85-5, Lumation Blue J  
RL: DEV (Device component use); USES (Uses)  
(white-light-emitting organic electroluminescent devices with polymer-small mol. hybrid emitting layers and organic electroluminescent displays using them)

L5 ANSWER 30 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2005:985788 HCAPLUS  
DN 143:422704  
TI Synthesis and properties of new luminescent

poly(arylenevinylene) copolymers containing spirobifluorene  
AU Huang, Bing; Li, Jun; Shao, Pin; Qin, Jingui; Jiang, Zuoquan; Yu, Gui;  
Liu, Yunqi  
CS Department of Chemistry, Wuhan University, Wuhan, 430072, Peop. Rep. China  
SO Synthetic Metals (2005), 153(1-3), 261-264  
CODEN: SYMEDZ; ISSN: 0379-6779

PB Elsevier B.V.

DT Journal

LA English

AB Two new light-emitting polymers, poly[2,2'-spirobifluorenylenevinylene-alt-2,5-di-(n-butoxy)-1,4-phenylenevinylene] (PSBF-PV) and poly[2,2'-spirobifluorenylenevinylene-alt-9,9'-di-(n-hexyl)-2,7-fluorenylvinylene] (PSBF-FV) were synthesized through the well-known Homer-Emons condensation between appropriate diphosphonates and dialdehydes. The polymers consist of arylenevinylene chromophores linked through 9,9'-spirobifluorene to control the effective conjugation length and to suppress interchain aggregation. Photoluminescence maxima of PSBF-PV and PSBF-FV in thin solid film were shown at 512 and 446 nm, corresponding to green and blue-green emission, resp. The single-layer light-emitting diodes of the two copolymers were fabricated in the configuration of ITO (indium-tin oxide)/polymer/Al, exhibiting weak emission. Better performance (luminance maxima is 846 cd/m<sup>2</sup>) was achieved using Alq<sub>3</sub> as the electron injection layer in double layer LEDs for PSBF-PV.

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Synthesis and properties of new luminescent  
poly(arylenevinylene) copolymers containing spirobifluorene

AB Two new light-emitting polymers, poly[2,2'-spirobifluorenylenevinylene-alt-2,5-di-(n-butoxy)-1,4-phenylenevinylene] (PSBF-PV) and poly[2,2'-spirobifluorenylenevinylene-alt-9,9'-di-(n-hexyl)-2,7-fluorenylvinylene] (PSBF-FV) were synthesized through the well-known Homer-Emons condensation between appropriate diphosphonates and dialdehydes. The polymers consist of arylenevinylene chromophores linked through 9,9'-spirobifluorene to control the effective conjugation length and to suppress interchain aggregation. Photoluminescence maxima of PSBF-PV and PSBF-FV in thin solid film were shown at 512 and 446 nm, corresponding to green and blue-green emission, resp. The single-layer light-emitting diodes of the two copolymers were fabricated in the configuration of ITO (indium-tin oxide)/polymer/Al, exhibiting weak emission. Better performance (luminance maxima is 846 cd/m<sup>2</sup>) was achieved using Alq<sub>3</sub> as the electron injection layer in double layer LEDs for PSBF-PV.

ST luminescent spirobifluorene contg polyarylenevinylene

IT Poly(arylenealkenylenes)

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(cardo; synthesis and properties of luminescent  
poly(arylenevinylene) copolymers containing spirobifluorene)

IT Cardo polymers

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(poly(arylenealkenylenes); synthesis and properties of  
luminescent poly(arylenevinylene) copolymers containing  
spirobifluorene)

IT Band gap

Luminescence

Molecular weight

Oxidation potential

Polydispersity

Reduction potential

Thermal stability

(synthesis and properties of luminescent

poly(arylenevinylene) copolymers containing spirobifluorene)

IT Electroluminescent devices



(synthesis and properties of luminescent  
poly(arylenevinylene) copolymers containing spirobifluorene for use in)  
IT 803712-15-4P 803712-16-5P 868351-19-3P 868351-20-6P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and properties of luminescent  
poly(arylenevinylene) copolymers containing spirobifluorene)

L5 ANSWER 31 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:693061 HCAPLUS

DN 144:274787

TI Color tuning of a light-emitting polymer: polyfluorene-containing pendant  
amino-substituted distyrylarylene units

AU Su, Huei-Jen; Wu, Fang-Iy; Tseng, Ya-Hsien; Shu, Ching-Fong

CS Dep. Appl. Chem., Natl. Chiao Tung Univ., Hsinchu, 300, Taiwan

SO Advanced Functional Materials (2005), 15(7), 1209-1216

CODEN: AFMDC6; ISSN: 1616-301X

PB Wiley-VCH Verlag GmbH & Co. KGaA

DT Journal

LA English

AB We have synthesized a novel polyfluorene copolymer, polyfluorene-bis[4-(diphenylamino)styryl]fluorene (PF-DPAS) by orthogonally attaching an amino-substituted distyrylarylene dye, bis[4-(diphenylamino)styryl]fluorene, onto the C9 position of a fluorene unit. We have investigated this polymer's thermal properties, electronic properties (viz., absorption and photoluminescence), and electrochem. behavior. Photoluminescence studies indicate that color tuning can be achieved through efficient Foerster energy transfer from the higher-energy polyfluorene backbone to the lower-energy pendent DPAS units. We have fabricated light-emitting diodes with the structure indium tin oxide (ITO)/poly(3,4-ethylenedioxythiophene) (PEDOT)/ emitting layer/1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene (TPBI)/Mg:Ag. The devices, based on blends of PF-DPAS in. polyfluorene-triphenylamine-oxadiazole (PF-TPA-OXD), exhibit significant improvements in device performance relative to that of the pure PF-TPA-OXD device; we attributed this improvement to both a red-shift of the electroluminescence (EL) spectra and an enhancement in quantum efficiency. At a blend ratio of 1:20, the EL spectrum is voltage-independent and stable, and exhibits the characteristic emission of a DPAS moiety: a peak at 461 nm and Commission Internationale de l'Eclairage (CIE) coordinates of (0.15, 0.18). The maximum external quantum efficiency is 2.08 % (2.87 cd A<sup>-1</sup>) at a bias of 9 V (86.1 mA cm<sup>-2</sup>) with a brightness of 2467 cd m<sup>-2</sup>; the maximum brightness (6916 cd m<sup>-2</sup>) occurred at an applied voltage of 13 V and a c.d. of 361 mA cm<sup>-2</sup>.

RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB We have synthesized a novel polyfluorene copolymer, polyfluorene-bis[4-(diphenylamino)styryl]fluorene (PF-DPAS) by orthogonally attaching an amino-substituted distyrylarylene dye, bis[4-(diphenylamino)styryl]fluorene, onto the C9 position of a fluorene unit. We have investigated this polymer's thermal properties, electronic properties (viz., absorption and photoluminescence), and electrochem. behavior. Photoluminescence studies indicate that color tuning can be achieved through efficient Foerster energy transfer from the higher-energy polyfluorene backbone to the lower-energy pendent DPAS units. We have fabricated light-emitting diodes with the structure indium tin oxide (ITO)/poly(3,4-ethylenedioxythiophene) (PEDOT)/ emitting layer/1,3,5-tris(N-phenylbenzimidazol-2-yl)benzene (TPBI)/Mg:Ag. The devices, based on blends of PF-DPAS in. polyfluorene-triphenylamine-oxadiazole (PF-TPA-OXD), exhibit significant improvements in device performance relative to that of the pure PF-TPA-OXD device; we attributed this improvement to both a red-shift of the electroluminescence (EL) spectra and an enhancement in quantum efficiency. At a blend ratio of 1:20, the EL spectrum is voltage-independent and stable, and exhibits

the characteristic emission of a DPAS moiety: a peak at 461 nm and Commission Internationale de l'Eclairage (CIE) coordinates of (0.15, 0.18). The maximum external quantum efficiency is 2.08 % (2.87 cd A<sup>-1</sup>) at a bias of 9 V (86.1 mA cm<sup>-2</sup>) with a brightness of 2467 cd m<sup>-2</sup>; the maximum brightness (6916 cd m<sup>-2</sup>) occurred at an applied voltage of 13 V and a c.d. of 361 mA cm<sup>-2</sup>.

IT Current density

Cyclic voltammetry

Electroluminescent devices

Luminescence

Luminescence, electroluminescence

(color tuning of light-emitting polyfluorene containing pendent amino-substituted distyrylarylene units)

IT 877680-28-9P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(color tuning of light-emitting polyfluorene containing pendent amino-substituted distyrylarylene units)

IT 877680-27-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(monomer; color tuning of light-emitting polyfluorene containing pendent amino-substituted distyrylarylene units)

L5 ANSWER 32 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:667747 HCAPLUS

DN 143:335150

TI Bis(2,2-diphenylvinyl)spirobifluorene: An efficient and stable blue emitter for electroluminescence applications

AU Wu, Fang-Iy; Shu, Ching-Fong; Wang, Tsai-Te; Diau, Eric Wei-Guang; Chien, Chin-Hsiung; Chuen, Chang-Hao; Tao, Yu-Tai

CS Department of Applied Chemistry, National Chiao Tung University, Hsin-Chu, 30035, Taiwan

SO Synthetic Metals (2005), 151(3), 285-292

CODEN: SYMEDZ; ISSN: 0379-6779

PB Elsevier B.V.

DT Journal

LA English

AB We have synthesized a spirobifluorene-based DPVBi [4,4'-bis(2,2-diphenylvinyl)-1,1'-biphenyl] analog, DPVSBF [2,7-bis(2,2-diphenylvinyl)-9,9'-spirobifluorene], in which the bis(2,2-diphenylvinyl) groups are connected through the 2 and 7 positions of the spirobifluorene framework, and have characterized its thermal properties, electronic properties (viz. absorption and photoluminescence), and electrochem. behavior. The presence of the rigid spirobifluorene linkage imparts significant improvement in the material's glass transition temperature and morphol. stability, while preserving most of the photophys. and electronic properties of its non-spiro, biphenyl analog, DPVBi. Organic electroluminescent devices having the structure ITO/NPB/DPVSBF/AlQ/LiF/Al display bright emissions with a  $\lambda$  max at 474 nm (CIE coordinates: 0.16, 0.24) and exhibit maximum luminescence exceeding 40,000 cd/m<sup>2</sup>. At a driving c.d. of 100 mA/cm<sup>2</sup> (6.4 V), a luminance of 4110 cd/m<sup>2</sup> was obtained with external quantum efficiency of 2.54%, luminance efficiency of 4.1 cd/A, and power efficiency of 2.0 lm/W. Moreover, the DPVSBF-based device exhibits a 16-fold enhancement in the operation lifetime relative to that of a similar device based on DPVBi.

RE.CNT 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Bis(2,2-diphenylvinyl)spirobifluorene: An efficient and stable blue emitter for electroluminescence applications

AB We have synthesized a spirobifluorene-based DPVBi [4,4'-bis(2,2-diphenylvinyl)-1,1'-biphenyl] analog, DPVSBF [2,7-bis(2,2-diphenylvinyl)-9,9'-spirobifluorene], in which the bis(2,2-diphenylvinyl) groups are

connected through the 2 and 7 positions of the spirobifluorene framework, and have characterized its thermal properties, electronic properties (viz. absorption and photoluminescence), and electrochem. behavior.

The presence of the rigid spirobifluorene linkage imparts significant improvement in the material's glass transition temperature and morphol. stability, while preserving most of the photophys. and electronic properties of its non-spiro, biphenyl analog, DPVBi. Organic electroluminescent devices having the structure

ITO/NPB/DPVSBF/AlQ/LiF/Al display bright emissions with a  $\lambda$  max at 474 nm (CIE coordinates: 0.16, 0.24) and exhibit maximum luminescence exceeding 40,000 cd/m<sup>2</sup>. At a driving c.d. of 100 mA/cm<sup>2</sup> (6.4 V), a luminance of 4110 cd/m<sup>2</sup> was obtained with external quantum efficiency of 2.54%, luminance efficiency of 4.1 cd/A, and power efficiency of 2.0 lm/W. Moreover, the DPVSBF-based device exhibits a 16-fold enhancement in the operation lifetime relative to that of a similar device based on DPVBi.

- ST diphenylvinyl spirobifluorene electroluminescence UV absorption current voltage
- IT Band gap  
HOMO (molecular orbital)  
LUMO (molecular orbital)  
(efficient and stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)
- IT Luminescent substances  
(electroluminescent; efficient and stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)
- IT Surface structure  
Thermal analysis  
UV and visible spectra  
(of bis(diphenylvinyl)spirobifluorene as electroluminescence applications)
- IT Electric current-potential relationship  
(of stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)
- IT 2085-33-8, Alq3 50926-11-9, ITO 123847-85-8, NPB  
RL: DEV (Device component use); USES (Uses)  
(efficient and stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)
- IT 827337-25-7P  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(efficient and stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)
- IT 83947-50-6P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(efficient and stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)
- IT 142289-08-5, DPVBi  
RL: PRP (Properties)  
(efficient and stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)
- IT 109-72-8, n-Butyl lithium, reactions 13249-58-6, 2,2-Diphenylvinyl bromide 171408-84-7, 2,7-Dibromo-9,9'-spirobifluorene  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(efficient and stable blue emitter bis(diphenylvinyl)spirobifluorene for electroluminescence applications)

L5 ANSWER 33 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:453698 HCAPLUS

DN 142:490164

TI Full color organic electroluminescent device

IN Ju, Sang-Hyun; Kim, Mu-Hyun; Kwon, Jang-Hyuk; Kim, Sung-Chul; Chung,

Ho-Kyoon; Chin, Byung-Doo; Lee, Seong-Taek

PA S. Korea

SO U.S. Pat. Appl. Publ., 9 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005112403	A1	20050526	US 2004-938464	20040909
	KR 2005050487	A	20050531	KR 2003-84238	20031125
	JP 2005158676	A	20050616	JP 2004-109132	20040401
	CN 1622721	A	20050601	CN 2004-10085026	20041013
PRAI	KR 2003-84238	A	20031125		

AB A full color organic electroluminescent device is described comprising a substrate; a first electrode formed on the substrate; an organic emitting layer formed on the first electrode, and having a red-emitting layer, a green-emitting layer and a blue-emitting layer, resp. patterned in a red pixel region, a green pixel region and a blue pixel region, wherein each of the red and green-emitting layers comprises a phosphorescent material and the blue-emitting layer comprises a fluorescent material; a hole blocking layer formed on the organic emitting layer as a common layer; and a second electrode formed on the hole blocking layer. The full color organic electroluminescent device may have enhanced lifetime and luminous efficiency characteristics.

TI Full color organic electroluminescent device

AB A full color organic electroluminescent device is described comprising a substrate; a first electrode formed on the substrate; an organic emitting layer formed on the first electrode, and having a red-emitting layer, a green-emitting layer and a blue-emitting layer, resp. patterned in a red pixel region, a green pixel region and a blue pixel region, wherein each of the red and green-emitting layers comprises a phosphorescent material and the blue-emitting layer comprises a fluorescent material; a hole blocking layer formed on the organic emitting layer as a common layer; and a second electrode formed on the hole blocking layer. The full color organic electroluminescent device may have enhanced lifetime and luminous efficiency characteristics.

ST full color electroluminescent device phosphorescent fluorescent material

IT Electroluminescent devices

Phosphorescent substances

(full color organic electroluminescent device using phosphorescent and fluorescent material)

IT 852201-29-7, IDE 140

RL: DEV (Device component use); USES (Uses)

(blue phosphor; full color organic electroluminescent device using phosphorescent and fluorescent material)

IT 397844-59-6, IDE 105

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(blue phosphor; full color organic electroluminescent device using phosphorescent and fluorescent material)

IT 1608-30-6 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline

16449-21-1 26009-24-5, Poly(1,4-phenylene-1,2-ethenediyl) 123864-00-6,

Poly(9,9-dioctylfluorene) 142289-08-5, DPVBi 146162-54-1, BALq

150155-92-3 296269-66-4 435293-93-9

RL: DEV (Device component use); USES (Uses)

(full color organic electroluminescent device using phosphorescent and fluorescent material)

IT 94928-86-6

RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(green emitting layer; full color organic electroluminescent

device using phosphorescent and fluorescent material)  
 IT 852201-34-4, HBM 010  
 RL: DEV (Device component use); USES (Uses)  
 (hole blocking layer; full color organic electroluminescent  
 device using phosphorescent and fluorescent material)  
 IT 627090-84-0, IDE 406  
 RL: DEV (Device component use); USES (Uses)  
 (hole injecting layer; full color organic electroluminescent  
 device using phosphorescent and fluorescent material)  
 IT 627090-85-1, IDE 320  
 RL: DEV (Device component use); USES (Uses)  
 (hole transporting layer; full color organic electroluminescent  
 device using phosphorescent and fluorescent material)  
 IT 58328-31-7, CBP  
 RL: DEV (Device component use); USES (Uses)  
 (red emitting layer; full color organic electroluminescent  
 device using phosphorescent and fluorescent material)  
 IT 31248-39-2  
 RL: DEV (Device component use); MOA (Modifier or additive use); USES  
 (Uses)  
 (red emitting layer; full color organic electroluminescent  
 device using phosphorescent and fluorescent material)

L5 ANSWER 34 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2005:450653 HCAPLUS  
 DN 142:490203  
 TI Full color OLED and method for fabricating the same  
 IN Lee, Jun-Yeob  
 PA S. Korea  
 SO U.S. Pat. Appl. Publ., 8 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005110398	A1	20050526	US 2004-980090	20041102
	KR 2005050488	A	20050531	KR 2003-84239	20031125
PRAI	KR 2003-84239	A	20031125		

AB An organic light-emitting display is provided. The organic light-emitting display comprises a substrate having red, green and blue pixel regions, and first electrodes each located on the pixel regions. A red phosphorescent emission layer, a green phosphorescent emission layer and a blue fluorescent emission layer are resp. located on the first electrodes. A hole blocking layer is located on the red phosphorescent emission layer and the green phosphorescent emission layer but not the blue fluorescent emission layer. A second electrode is located on the hole blocking layer and the blue fluorescent emission layer.

IT Electroluminescent devices  
 (displays; full color OLED and method for fabricating the same)

IT Luminescent screens  
 (electroluminescent; full color OLED and method for  
 fabricating the same)

IT Electrodes  
 Electroluminescent devices  
 Fluorescent substances  
 HOMO (molecular orbital)  
 Phosphors  
 (full color OLED and method for fabricating the same)

IT 147-14-8, Copper phthalocyanine 1608-30-6, Distyrylbenzene 2085-33-8,  
 Alq3 26009-24-5, Poly(1,4-phenylene-1,2-ethenediyl) 31248-39-2  
 50926-11-9, Indium tin oxide 58328-31-7, Cbp 94928-86-6 123847-85-8  
 142289-08-5, Dpvbi 146162-54-1, BA1q 296269-66-4 337526-95-1

344396-72-1, IDE 120 397844-59-6, IDE 105 435293-93-9  
 RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)  
 (full color OLED and method for fabricating the same)

L5 ANSWER 35 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2005:364959 HCAPLUS  
 DN 143:85896  
 TI White light emission from two blue emitters of an equimolar (1:1) blend in single-layer device  
 AU Kim, O.-K.; Kim, W. H.; Huang, Z.; Je, J. T.; Sung, C. S. P.  
 CS Chemistry Division, Naval Research Laboratory, Washington, DC, 20375, USA  
 SO Synthetic Metals (2005), 150(2), 189-193  
 CODEN: SYMEDZ; ISSN: 0379-6779  
 PB Elsevier B.V.  
 DT Journal  
 LA English  
 OS CASREACT 143:85896  
 AB A white light emission was observed from a single-layer emitting system consisting of an equimolar blend of two blue emitters of a bipolar oligomer, 9,9-spirobifluorene-centered bioxadiazole (303) and polyvinylcarbazole (PVK), featuring a single broad emission (ranging in 400-800 nm), which is distinctly different from those of large PVK-fraction blends ( $\lambda_{em} \approx 490$  nm) and that of pristine 303 ( $\lambda_{em} \approx 555$  nm) as well.

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Luminescence  
 (of 9,9-spirobifluorene-centered bioxadiazole pristine and in blend with polyvinylcarbazole; white light emission from two blue emitters of an equimolar (1:1) blend in single-layer device)  
 IT Electric current-potential relationship  
 Electroluminescent devices  
 Luminescence, electroluminescence  
 Reduction potential  
 (white light emission from two blue emitters of an equimolar (1:1) blend in single-layer device)  
 IT 436798-91-3P  
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (emitter, pristine or in blend with polyvinylcarbazole; white light emission from two blue emitters of an equimolar (1:1) blend in single-layer device)

L5 ANSWER 36 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2005:324479 HCAPLUS  
 DN 142:381946  
 TI Organic electroluminescence device  
 IN Tsuji, Taishi; Kawami, Shin  
 PA Pioneer Corporation, Japan  
 SO PCT Int. Appl., 22 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005034588	A1	20050414	WO 2004-JP14702	20040929
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,				

NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,  
 TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW,  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,  
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,  
 EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE,  
 SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
 SN, TD, TG

TW 252055 B 20060321 TW 2004-93129229 20040927  
 EP 1679941 A1 20060712 EP 2004-773626 20040929

R: DE, FR, GB

CN 1864444 A 20061115 CN 2004-80028720 20040929  
 PRAI JP 2003-345314 A 20031003  
 WO 2004-JP14702 W 20040929

AB An organic electroluminescence device comprising organic functional layers disposed between a pos. electrode and a neg. electrode arranged in pair opposite to each other and composed of three or more thin films including a luminescent layer of organic compound. The organic functional layers comprise a first layer and a second layer arranged in pair and each constituted of an organic compound whose glass transition temperature is a first temperature or above and further a third layer interposed between the first layer and the second layer and constituted of an organic compound whose glass transition temperature is below the first temperature.

RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Organic electroluminescence device

AB An organic electroluminescence device comprising organic functional layers disposed between a pos. electrode and a neg. electrode arranged in pair opposite to each other and composed of three or more thin films including a luminescent layer of organic compound. The organic functional layers comprise a first layer and a second layer arranged in pair and each constituted of an organic compound whose glass transition temperature is a first temperature or above and further a third layer interposed between the first layer and the second layer and constituted of an organic compound whose glass transition temperature is below the first temperature.

ST org electroluminescence device

IT Electroluminescent devices  
 Luminescent substances

(organic electroluminescence device)  
 IT 147-14-8, Copper phthalocyanine 2085-33-8, Alq3 123847-85-8,  
 $\alpha$ -NPD

RL: DEV (Device component use); USES (Uses)  
 (organic electroluminescence device)

IT 800395-01-1  
 RL: DEV (Device component use); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
 (organic electroluminescence device)

IT 146162-54-1, Balq 296269-66-4 844435-92-3  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
 (organic electroluminescence device)

L5 ANSWER 37 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:324478 HCAPLUS

DN 142:381945

TI Organic electroluminescence device

IN Tsuji, Taishi

PA Pioneer Corporation, Japan

SO PCT Int. Appl., 21 pp.

CODEN: PIXXD2

DT Patent  
LA Japanese  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005034587	A1	20050414	WO 2004-JP14674	20040929
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	TW 255665	B	20060521	TW 2004-93129006	20040924
	EP 1681909	A1	20060719	EP 2004-773611	20040929
	R: DE, FR, GB				
	CN 1864445	A	20061115	CN 2004-80028886	20040929
PRAI	JP 2003-345315	A	20031003		
	WO 2004-JP14674	W	20040929		

AB An organic electroluminescence device comprising organic functional layers disposed between a pos. electrode and a neg. electrode arranged in pair opposite to each other and composed of three or more thin films including a luminescent layer of organic compound The organic functional layers comprise a first layer and a second layer arranged in pair and each constituted of an organic compound whose glass transition temperature is a first temperature or above and further a third layer interposed between the first layer and the second layer and constituted of an organic compound whose glass transition temperature is below the first temperature The third layer has a thickness of 30 nm or less.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Organic electroluminescence device

AB An organic electroluminescence device comprising organic functional layers disposed between a pos. electrode and a neg. electrode arranged in pair opposite to each other and composed of three or more thin films including a luminescent layer of organic compound The organic functional layers comprise a first layer and a second layer arranged in pair and each constituted of an organic compound whose glass transition temperature is a first temperature or above and further a third layer interposed between the first layer and the second layer and constituted of an organic compound whose glass transition temperature is below the first temperature The third layer has a thickness of 30 nm or less.

ST org electroluminescence device

IT Electroluminescent devices  
(organic electroluminescence device)

IT 147-14-8, Copper phthalocyanine 2085-33-8, Alq3 123847-85-8,  
 $\alpha$ -NPD

RL: DEV (Device component use); USES (Uses)  
(organic electroluminescence device)

IT 800395-01-1

RL: DEV (Device component use); MOA (Modifier or additive use); PEP  
(Physical, engineering or chemical process); PYP (Physical process); PROC



(Process); USES (Uses)

(organic electroluminescence device)

IT 146162-54-1, BALq 296269-66-4 844435-92-3

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
(organic electroluminescence device)

L5 ANSWER 38 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:300495 HCAPLUS

DN 142:355757

TI White-emitting copolymers for high quality polymeric organic light-emitting diodes.

IN Falcou, Aurelie; Buesing, Arne; Heun, Susanne; Steiger, Juergen; Gerhard, Anja; Schulte, Niels; Becker, Heinrich

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 34 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005030827	A1	20050407	WO 2004-EP10439	20040917
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 10343606	A1	20050414	DE 2003-10343606	20030920
	EP 1670844	A1	20060621	EP 2004-765334	20040917
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
	CN 1852933	A	20061025	CN 2004-80027040	20040917
	US 2006199943	A1	20060907	US 2006-572117	20060316
PRAI	DE 2003-10343606	A	20030920		
	WO 2004-EP10439	W	20040917		

AB White-emitting (fluorescent or phosphorescent) copolymers obtained by combining  $\leq 10$  mol.% of blue-emitting-, 0.001-3 mol.% of green-emitting- and 0.0005-1 mol.% of red-emitting repeating units are used for long-term stable (no phase separation) high quality polymeric organic light-emitting diodes with high efficiency and low operating voltage. Thus, a white PLED prepared from a conjugated copolymer (prepared from 5 different repeating units by Suzuki coupling reaction and having mol. weight 672) exhibits maximal efficiency 7.89 cd/A and life time 1100 h.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Polymers, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(conjugated, luminescent; white-emitting copolymers obtained by combining blue-, green- and red-emitting repeating units for high quality polymeric organic light-emitting diodes with high efficiency and low operating voltage.)

IT Luminescent substances

(electroluminescent; white-emitting copolymers obtained by combining blue-, green- and red-emitting repeating units for high quality polymeric organic light-emitting diodes with high efficiency and

low operating voltage.)

IT Electroluminescent devices  
Phosphorescent substances  
Semiconductor device fabrication  
Suzuki coupling reaction  
(white-emitting copolymers obtained by combining blue-, green- and red-emitting repeating units for high quality polymeric organic light-emitting diodes with high efficiency and low operating voltage.)

IT 396123-39-0 396123-43-6 463944-36-7 501434-76-0  
844700-79-4 844700-80-7 848892-53-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(repeating unit, blue; white-emitting copolymers obtained by combining blue-, green- and red-emitting repeating units for high quality polymeric organic light-emitting diodes with high efficiency and low operating voltage.)

L5 ANSWER 39 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2005:239950 HCAPLUS  
DN 143:459708  
TI Red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes  
AU Chiang, Chih-Long; Wu, Min-Fei; Dai, De-Chang; Wen, Yuh-Sheng; Wang, Juen-Kai; Chen, Chin-Ti  
CS Institute of Chemistry, Academia Sinica, Taipei, 11529, Taiwan  
SO Advanced Functional Materials (2005), 15(2), 231-238  
CODEN: AFMDC6; ISSN: 1616-301X  
PB Wiley-VCH Verlag GmbH & Co. KGaA  
DT Journal  
LA English  
OS CASREACT 143:459708  
AB Rare red-fluorescent fluorene derivs. were designed and synthesized. The long-wavelength red fluorescence is achieved by incorporating a di(4-tolyl)amino or diphenylamino electron donor and a dicyanovinyl electron acceptor. The single-crystal x-ray structures of the di(4-tolyl)amino (pTSPDCV) and diphenylamino (PhSPDCV) compds. indicate only weak non- $\pi$  van der Waals contacts in addition to long-distance dipole-dipole interactions of the red-emitting fluorene mols. in the solid state. The aggregation of the dipolar fluorene is largely suppressed by introducing bulky 9,9-substituents (spiro-fused bifluorene) as well as a nonplanar di(4-tolyl)amino or diphenylamino group. In the solid state, these fluorene derivs. all show red fluorescence that is much brighter than with the red dopants Nile Red and DCM (4-(dicyanomethylene)-2-methyl-6-[4-(dimethylaminostyryl)-4H-pyran]). The unique photophys. properties of red-emitting fluorene derivs. differ from other known red dopants and facilitate the fabrication of nondoped red organic light-emitting diodes (OLEDs). Authentic red (CIE,  $x = 0.65$ ,  $y_r = 0.35$ ) electroluminescence with a brightness of  $>12000 \text{ cd m}^{-2}$  (greater than  $600 \text{ cd m}^{-2}$  at  $20 \text{ mA cm}^{-2}$ ) and a remarkable external quantum efficiency  $\leq 3.6\%$  were observed for the red-emitting OLEDs with pTSPDCV or PhSPDCV as the sole emitting host.

RE.CNT 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Rare red-fluorescent fluorene derivs. were designed and synthesized. The long-wavelength red fluorescence is achieved by incorporating a di(4-tolyl)amino or diphenylamino electron donor and a dicyanovinyl electron acceptor. The single-crystal x-ray structures of the di(4-tolyl)amino (pTSPDCV) and diphenylamino (PhSPDCV) compds. indicate only weak non- $\pi$  van der Waals contacts in addition to long-distance dipole-dipole interactions of the red-emitting fluorene mols. in the solid state. The aggregation of the dipolar fluorene is largely suppressed by introducing bulky 9,9-substituents (spiro-fused bifluorene) as well as a nonplanar di(4-tolyl)amino or diphenylamino group. In the solid state, these fluorene derivs. all show red fluorescence that is much brighter

than with the red dopants Nile Red and DCM (4-(dicyanomethylene)-2-methyl-6-[4-(dimethylaminostyryl)-4H-pyran]). The unique photophys. properties of red-emitting fluorene derivs. differ from other known red dopants and facilitate the fabrication of nondoped red organic light-emitting diodes (OLEDs). Authentic red (CIE,  $x = 0.65$ ,  $y_r = 0.35$ ) electroluminescence with a brightness of  $>12000 \text{ cd m}^{-2}$  (greater than  $600 \text{ cd m}^{-2}$  at  $20 \text{ mA cm}^{-2}$ ) and a remarkable external quantum efficiency  $\leq 3.6\%$  were observed for the red-emitting OLEDs with pTSPDCV or PhSPDCV as the sole emitting host.

IT Color  
Conformation  
Crystal structure  
Differential scanning calorimetry  
Electron acceptors  
Electron donors  
Fluorescence  
Glass transition temperature  
Luminescence, electroluminescence  
Melting point  
Molecular structure  
Photophysics  
Pi-pi interaction  
(red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes)

IT Electroluminescent devices  
(red-emitting; red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes)

IT 869299-85-4P 869299-86-5P  
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crystallog. and red fluorescence; red-emitting fluorenes as efficient emitting hosts for non-doped, organic red-light-emitting diodes)

L5 ANSWER 40 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:239309 HCAPLUS

DN 142:308096

TI Electronic device comprising an organic semiconductor and an intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid

IN Parham, Amir; Falcou, Aurelie; Heun, Susanne; Steiger, Juergen

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 36 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005024970	A1	20050317	WO 2004-EP9902	20040904
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 10340711	A1	20050407	DE 2003-10340711	20030904
	EP 1671379	A1	20060621	EP 2004-764853	20040904

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK

CN 1864280	A	20061115	CN 2004-80028998	20040904
JP 2007504656	T	20070301	JP 2006-525128	20040904
US 2007034862	A1	20070215	US 2006-570640	20060303
PRAI DE 2003-10340711	A	20030904		
WO 2004-EP9902	W	20040904		

AB The invention relates to electronic devices comprising at least one layer of a conductive, doped polymer and a layer of an organic semiconductor. The electronic devices are characterized in that at least one cationically polymerizable, conducting or semiconducting organic buffer layer to which <0.5% of a photoacid is admixed is inserted between the 2 layers. Surprisingly, the electronic properties of the inventive devices can be significantly improved by inserting at least one cationically crosslinkable buffer layer between the doped intermediate layer and the functional organic semiconductor layer. Particularly good properties are obtained with a buffer layer in which cationic crosslinking is thermally induced, i.e. by raising the temperature to 50-250°, preferably 80-200°, without adding any photoacid. Another advantage of the buffer layer consists of the fact that uncontrolled crosslinking of a cationically crosslinkable semiconductor can be prevented by using the buffer layer, thus allowing the semiconductor to be structured in a specific manner. Crosslinking the buffer layer has the further advantage of increasing the glass transition temperature of the material, and hence also the stability of the layer.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

ST polymer org electroluminescent semiconductor device cationic  
polymn

IT Electroluminescent devices  
(blue-emitting; electronic device comprising an organic semiconductor and an intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid)

IT Electroluminescent devices  
Field effect transistors  
Semiconductor devices  
(organic; electronic device comprising an organic semiconductor and an intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid)

IT 847800-47-9P 847800-48-0P 847800-49-1P  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(electronic device comprising an organic semiconductor and an intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid)

IT 287976-94-7 396123-39-0 396123-43-6 463944-36-7 501434-76-0  
521985-55-7 844701-60-6 844701-67-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(monomer; electronic device comprising an organic semiconductor and an intermediate buffer layer made of a polymer that is cationically polymerizable and contains no photoacid)

L5 ANSWER 41 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:141138 HCAPLUS

DN 142:240861

TI Preparation and use of conjugated copolymers

IN Becker, Heinrich; Breuning, Esther; Falcou, Aurelie; Parham, Amir

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 33 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005014688	A2	20050217	WO 2004-EP9018	20040812
	WO 2005014688	A3	20050428		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 10337077	A1	20050310	DE 2003-10337077	20030812
	EP 1656407	A2	20060517	EP 2004-764022	20040812
	R: DE, FR, GB, NL				
	CN 1835985	A	20060920	CN 2004-80023046	20040812
	JP 2007501883	T	20070201	JP 2006-522982	20040812
	US 2006229427	A1	20061012	US 2006-567934	20060209
PRAI	DE 2003-10337077	A	20030812		
	WO 2004-EP9018	W	20040812		
OS	MARPAT 142:240861				

AB The title polymers, with good durability and efficiency in electroluminescent applications, contain  $\geq 1$  of the structures: blocks for hole or electron transport; blocks for injection of pos. or neg. charges; emitting blocks; blocks facilitating singlet-to-triplet exciton transition; and/or polymer backbone blocks. Refluxing 0.8 mmol N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)-4,4'-biphenyldiamine, 0.72 mmol I, 3.91 g K phosphate hydrate, 0.45 mg Pd(OAc)<sub>2</sub>, 3.65 mg tris(2-tolyl)phosphine, and dioxane 25, PhMe 25, and H<sub>2</sub>O 6.8 mL for 4 h gave a block [number- and weight-average (Mw) mol. weight 13,700 and 34,4000, resp.] which was refluxed with II 1.2, III 1.2, I 2.04, IV 1.2, and V 0.8 mmol for 5 h, end-capped with 0.1 mL PhBr at reflux for 1 h, refluxed with PhB(OH)<sub>2</sub> for 1 h, and stirred with 0.01% aqueous NaCN for 3 h to give 4.66 g block polymer with Mw 200,000 and polydispersity 5.0. Electroluminescence data for the polymers are exemplified.

AB The title polymers, with good durability and efficiency in electroluminescent applications, contain  $\geq 1$  of the structures: blocks for hole or electron transport; blocks for injection of pos. or neg. charges; emitting blocks; blocks facilitating singlet-to-triplet exciton transition; and/or polymer backbone blocks. Refluxing 0.8 mmol N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)-4,4'-biphenyldiamine, 0.72 mmol I, 3.91 g K phosphate hydrate, 0.45 mg Pd(OAc)<sub>2</sub>, 3.65 mg tris(2-tolyl)phosphine, and dioxane 25, PhMe 25, and H<sub>2</sub>O 6.8 mL for 4 h gave a block [number- and weight-average (Mw) mol. weight 13,700 and 34,4000, resp.] which was refluxed with II 1.2, III 1.2, I 2.04, IV 1.2, and V 0.8 mmol for 5 h, end-capped with 0.1 mL PhBr at reflux for 1 h, refluxed with PhB(OH)<sub>2</sub> for 1 h, and stirred with 0.01% aqueous NaCN for 3 h to give 4.66 g block polymer with Mw 200,000 and polydispersity 5.0. Electroluminescence data for the polymers are exemplified.

ST block copolymer conjugated luminescence; fluorene deriv block copolymer conjugated; boronic ester cyclic block copolymer; bromofluorene deriv block copolymer; biphenyldiamine deriv block copolymer

IT Electroluminescent devices  
(preparation of conjugated block copolymers for use in electroluminescent devices)

IT 844701-59-3P 844701-61-7P 844701-63-9P  
844701-64-0P 844701-65-1P 844701-66-2P  
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or

engineered material use); PREP (Preparation); USES (Uses)  
 (conjugated; preparation and use of conjugated block copolymers)

IT 844701-60-6P 844701-62-8P 844701-67-3P  
 RL: IMF (Industrial manufacture); PREP (Preparation)  
 (preparation)

L5 ANSWER 42 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2005:114653 HCAPLUS  
 DN 144:36070  
 TI Red fluorenes as the efficient host emitter for non-doped red organic  
 light-emitting diodes  
 AU Chiang, Chih-Long; Wu, Min-Fei; Shu, Ching-Fong; Chen, Chin-Ti  
 CS Department of the Applied Chemistry, National Chiao Tung Univ., Hsinchu,  
 30035, Taiwan  
 SO Proceedings of SPIE-The International Society for Optical Engineering  
 (2005), 5632(Light-Emitting Diode Materials and Devices), 80-87  
 CODEN: PSISDG; ISSN: 0277-786X  
 PB SPIE-The International Society for Optical Engineering  
 DT Journal  
 LA English  
 OS CASREACT 144:36070  
 AB Crystal red fluorophores based on donor-acceptor substituted  
 spirofluorene, i.e., I show strong fluorescence in solution  
 ( $\Phi_f$ .apprx.70%) as well as in solid state ( $\Phi_f > 30\%$ ). Non-doped  
 red OLEDs fabricated with I exhibit authentic red (CIE,  $x = 0.65$ ,  $y_r =$   
 $0.35$ ) electroluminescence with brightness over 12,000 cd m<sup>-2</sup> (or  
 $> 600$  cd m<sup>-2</sup> at 20 mA cm<sup>-2</sup>) and remarkable external quantum efficiency as  
 high as 3.6%. On the other hand, the bis-substituted derivs. of  
 spirofluorene II show relatively weak fluorescence both in solution ( $\Phi_f <$   
 $20\%$ ) and in solid state ( $\Phi_f < 10\%$ ). Although saturated red  
 electroluminescence (CIE,  $x = 0.65$ ,  $y_r = 0.34$ ) is also observed,  
 non-doped red OLED containing II performs much worse than I OLEDs. Both  
 PhSPDCV and BisPhSPDCV are not amorphous forming loosely packed crystal  
 materials in solid state with no intimate  $\pi$ - $\pi$  interaction.

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Crystal red fluorophores based on donor-acceptor substituted  
 spirofluorene, i.e., I show strong fluorescence in solution  
 ( $\Phi_f$ .apprx.70%) as well as in solid state ( $\Phi_f > 30\%$ ). Non-doped  
 red OLEDs fabricated with I exhibit authentic red (CIE,  $x = 0.65$ ,  $y_r =$   
 $0.35$ ) electroluminescence with brightness over 12,000 cd m<sup>-2</sup> (or  
 $> 600$  cd m<sup>-2</sup> at 20 mA cm<sup>-2</sup>) and remarkable external quantum efficiency as  
 high as 3.6%. On the other hand, the bis-substituted derivs. of  
 spirofluorene II show relatively weak fluorescence both in solution ( $\Phi_f <$   
 $20\%$ ) and in solid state ( $\Phi_f < 10\%$ ). Although saturated red  
 electroluminescence (CIE,  $x = 0.65$ ,  $y_r = 0.34$ ) is also observed,  
 non-doped red OLED containing II performs much worse than I OLEDs. Both  
 PhSPDCV and BisPhSPDCV are not amorphous forming loosely packed crystal  
 materials in solid state with no intimate  $\pi$ - $\pi$  interaction.

IT Electroluminescent devices  
 (organic; preparation of red fluorenes as efficient host emitter for  
 non-doped  
 red organic light-emitting diodes)

IT Color  
 Crystal structure  
 Fluorescence  
 Glass transition temperature  
 Luminescence, electroluminescence  
 Molecular structure  
 Optical absorption  
 Solvatochromism  
 (preparation of red fluorenes as efficient host emitter for non-doped red  
 organic light-emitting diodes)

IT 864957-79-9P 869299-86-5P  
 RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (preparation of red fluorenes as efficient host emitter for non-doped red organic light-emitting diodes)

L5 ANSWER 43 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2005:99763 HCAPLUS  
 DN 142:186261  
 TI Organic electroluminescent element  
 IN Gerhard, Anja; Stoessel, Philipp; Vestweber, Horst  
 PA Covion Organic Semiconductors GmbH, Germany  
 SO PCT Int. Appl., 31 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA German  
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005011013	A1	20050203	WO 2004-EP8070	20040720
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1656706	A1	20060517	EP 2004-741150	20040720
	R: DE, FR, GB, NL				
	CN 1826701	A	20060830	CN 2004-80021255	20040720
	JP 2006528421	T	20061214	JP 2006-520763	20040720
	US 2006175958	A1	20060810	US 2006-565488	20060411
PRAI	DE 2003-10333232	A	20030721		
	WO 2004-EP8070	W	20040720		

AB Organic electroluminescent devices are described which comprise a cathode, an anode, and  $\geq 2$  emitting layers which emit different wavelengths of light, with  $\geq 1$  of the emitting layers incorporating  $\geq 1$  phosphorescent emitter.

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Organic electroluminescent element  
 AB Organic electroluminescent devices are described which comprise a cathode, an anode, and  $\geq 2$  emitting layers which emit different wavelengths of light, with  $\geq 1$  of the emitting layers incorporating  $\geq 1$  phosphorescent emitter.  
 ST org electroluminescent device multiple emitting layer phosphorescent dopant  
 IT Phosphorescent substances  
 (organic electroluminescent devices with multiple emitting layers including at least a phosphorescent material-containing layer)  
 IT Electroluminescent devices  
 (organic; organic electroluminescent devices with multiple emitting layers including at least a phosphorescent material-containing layer)  
 IT 782504-07-8  
 RL: DEV (Device component use); USES (Uses)  
 (emitting layer host; organic electroluminescent devices with multiple emitting layers including at least a phosphorescent material-containing layer)  
 IT 94928-86-6 296269-66-4

RL: DEV (Device component use); USES (Uses)

(organic electroluminescent devices with multiple emitting layers including at least a phosphorescent material-containing layer)

IT 7439-98-7D, Molybdenum, compds. 7440-04-2D, Osmium, compds.  
7440-05-3D, Palladium, compds. 7440-06-4D, Platinum, compds.  
7440-15-5D, Rhenium, compds. 7440-16-6D, Rhodium, compds. 7440-18-8D,  
Ruthenium, compds. 7440-22-4D, Silver, compds. 7440-33-7D, Tungsten,  
compds. 7440-53-1D, Europium, compds. 7440-57-5D, Gold, compds.  
855699-88-6

RL: DEV (Device component use); MOA (Modifier or additive use); USES  
(Uses)

(organic electroluminescent devices with multiple emitting layers including at least a phosphorescent material-containing layer)

L5 ANSWER 44 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:70337 HCAPLUS

DN 142:144366

TI Display based on organic light-emitting diode (OLED) and procedure for its production

IN Humbs, Werner

PA Samsung SDI Co., Ltd., S. Korea

SO Ger. Offen., 12 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10331109	A1	20050127	DE 2003-10331109	20030704
PRAI	DE 2003-10331109		20030704		

AB The invention relates to a simple and economical method to manufacture an organic

electroluminescent display without using shadow masks to achieve improved service life, light efficiency, and low energy consumption.

AB The invention relates to a simple and economical method to manufacture an organic

electroluminescent display without using shadow masks to achieve improved service life, light efficiency, and low energy consumption.

ST org light emitting diode OLED electroluminescent display manuf

IT Electroluminescent devices

(displays; display based on organic light-emitting diode (OLED) and procedure for its production)

IT Luminescent screens

(electroluminescent; display based on organic light-emitting diode (OLED) and procedure for its production)

IT 2085-33-8, Alq3 7429-90-5, Aluminum, uses 25233-30-1, Polyaniline  
50926-11-9, ITO 65181-78-4, N,N'-Diphenyl-N,N'-bis(3-methylphenyl)-1,1-  
biphenyl-4,4'-diamine 80663-92-9, 2,5,8,11-Tetra-tert-butylperylene  
95270-88-5, Polyfluorene 123847-85-8, N,N'-Di(naphthalen-1-yl)-N,N'-  
diphenylbenzidine 126213-51-2, Polyethylene dioxythiophene 142289-08-5  
189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene  
213621-16-0, 5,5'-Bis(dimesitylboryl)-2,2'-bithiophene 296269-66-4  
827314-33-0, 1,4-Bis[4-(2-trimethylsilylvinyl)styryl]-2,5-dibutoxybenzene

RL: DEV (Device component use); USES (Uses)

(display based on organic light-emitting diode (OLED) and procedure for its production)

L5 ANSWER 45 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:1079816 HCAPLUS

DN 142:45696

TI Organic light-emitting device (OLED) and OLED-based display with improved efficiency

IN Uhlig, Albrecht; Schrader, Thomas



PA Samsung SDI Co., Ltd., S. Korea  
 SO Eur. Pat. Appl., 7 pp.  
 CODEN: EPXXDW  
 DT Patent  
 LA German  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1487027	A2	20041215	EP 2004-90226	20040610
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	DE 10326725	A1	20050113	DE 2003-10326725	20030610
	DE 20320925	U1	20050728	DE 2003-20320925	20030610
PRAI	DE 2003-10326725	A	20030610		

AB Organic light-emitting devices comprising a substrate, a n anode, a polymeric organic emitting material, and a cathode are described in which a hole-blocking layer is interposed between the anode and the organic emitting material. An alkaline earth fluoride or alkali metal fluoride layer may be provided between the cathode and the emitting layer. Displays employing the devices are also described. Methods for producing electroluminescence are described which entail the reduction or suppression of the movement of holes from the anode to the polymeric layer.

AB Organic light-emitting devices comprising a substrate, a n anode, a polymeric organic emitting material, and a cathode are described in which a hole-blocking layer is interposed between the anode and the organic emitting material. An alkaline earth fluoride or alkali metal fluoride layer may be provided between the cathode and the emitting layer. Displays employing the devices are also described. Methods for producing electroluminescence are described which entail the reduction or suppression of the movement of holes from the anode to the polymeric layer.

ST org light emitting device anode side hole blocking layer;  
 electroluminescent display anode side hole blocking layer; hole  
 movement suppression electroluminescence prodn

IT Electroluminescent devices  
 (displays, organic; organic light-emitting devices with anode-side  
 hole-blocking layers and displays using them and methods of producing  
 electroluminescent light)

IT Luminescent screens  
 (electroluminescent, organic; organic light-emitting devices with  
 anode-side hole-blocking layers and displays using them and methods of  
 producing electroluminescent light)

IT Luminescence, electroluminescence  
 (organic light-emitting devices with anode-side hole-blocking layers and  
 displays using them and methods of producing electroluminescent  
 light)

IT Alkali metal fluorides  
 Alkaline earth fluorides  
 Poly(arylenealkenylenes)  
 RL: DEV (Device component use); USES (Uses)  
 (organic light-emitting devices with anode-side hole-blocking layers and  
 displays using them and methods of producing electroluminescent  
 light)

IT Electroluminescent devices  
 (organic; organic light-emitting devices with anode-side hole-blocking  
 layers  
 and displays using them and methods of producing  
 electroluminescent light)

IT Aluminum alloy, nonbase  
 Calcium alloy, nonbase  
 Silver alloy, nonbase  
 Ytterbium alloy, nonbase

RL: DEV (Device component use); USES (Uses)  
(cathode; organic light-emitting devices with anode-side hole-blocking  
layers and displays using them and methods of producing  
electroluminescent light)

IT 50926-11-9, ITO  
RL: DEV (Device component use); USES (Uses)  
(anode; organic light-emitting devices with anode-side hole-blocking  
layers and displays using them and methods of producing  
electroluminescent light)

IT 7429-90-5, Aluminum, uses 7440-22-4, Silver, uses 7440-64-4,  
Ytterbium, uses 7440-70-2, Calcium, uses  
RL: DEV (Device component use); USES (Uses)  
(cathode; organic light-emitting devices with anode-side hole-blocking  
layers and displays using them and methods of producing  
electroluminescent light)

IT 41584-66-1, Tris(5-chloro-8-hydroxyquinolinato)aluminum 142289-08-5,  
DPVBi 146162-54-1, Bis(2-methyl-8-quinolinolato)(4-  
phenylphenolato)aluminum 296269-66-4  
RL: DEV (Device component use); USES (Uses)  
(hole-blocking layer; organic light-emitting devices with anode-side  
hole-blocking layers and displays using them and methods of producing  
electroluminescent light)

IT 95270-88-5D, Polyfluorene, derivs.  
RL: DEV (Device component use); USES (Uses)  
(organic light-emitting devices with anode-side hole-blocking layers and  
displays using them and methods of producing electroluminescent  
light)

IT 7789-24-4, Lithium fluoride, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES  
(Uses)  
(organic light-emitting devices with anode-side hole-blocking layers and  
displays using them and methods of producing electroluminescent  
light)

IT 50851-57-5  
RL: DEV (Device component use); MOA (Modifier or additive use); USES  
(Uses)  
(polyethylene dioxythiophene doped with; organic light-emitting devices  
with anode-side hole-blocking layers and displays using them and  
methods of producing electroluminescent light)

IT 126213-51-2, Poly(3,4-ethylenedioxythiophene)  
RL: DEV (Device component use); USES (Uses)  
(polystyrene sulfonate-doped; organic light-emitting devices with  
anode-side hole-blocking layers and displays using them and methods of  
producing electroluminescent light)

L5 ANSWER 46 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2004:1006294 HCAPLUS  
DN 142:143568  
TI White organic light-emitting diodes based on 2,7-bis(2,2-diphenylvinyl)-  
9,9'-spirobifluorene: Improvement in operational lifetime  
AU Chuen, C. H.; Tao, Y. T.; Wu, F. I.; Shu, C. F.  
CS Institute of Chemistry, Academia Sinica, Taipei, Taiwan  
SO Applied Physics Letters (2004), 85(20), 4609-4611  
CODEN: APPLAB; ISSN: 0003-6951  
PB American Institute of Physics  
DT Journal  
LA English  
AB Very bright white organic light-emitting diodes were fabricated using  
2,7-bis(2,2-diphenylvinyl)-9,9'-spirobifluorene (DPVSBF) doped with DCJTb  
as the emission layer. With a device configuration of ITO/NPB(40  
nm)/DPVSBF:0.2%DCJTb(11 nm)/Alq(30 nm)/LiF(1 nm)/Al(150 nm), a brightness  
of 1575 cd/m<sup>2</sup> with an external quantum efficiency of 3.31% and luminous  
efficiency of 8.00 cd/A, a power efficiency of 5.35 lm/W was achieved at a

driving current of 20 mA/cm<sup>2</sup> (4.7 V). The brightness reached 66,000 cd/m<sup>2</sup> at 15 V. The Commission Internationale de l'Eclairage coordinates stayed nearly constant, changed from (0.35, 0.36) to (0.32, 0.34) when the voltage increased from 6 to 12 V. The relative operational lifetime of the device increased by a factor of .apprx.20 compared with a similar device based on 4,4'-bis-(2,2-diphenylvinyl)-1,1'-biphenyl as the source of the blue emission. The much extended half-lifetime was attributed to the higher morphol. stability of the DPVSBF.

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Luminescence, electroluminescence

Size effect

(electroluminescence of DCJTB-doped phenylvinyl-9,9'-spirobifluorene thin films with size dependence in LEDs)

IT Electroluminescent devices

(thin-film, white-emitting, organic; lifetime improvement of white organic LEDs based on DCJTB-doped phenylvinyl-9,9'-spirobifluorene)

IT 827337-25-7

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(lifetime improvement of white organic LEDs based on DCJTB-doped phenylvinyl-9,9'-spirobifluorene)

L5 ANSWER 47 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:871215 HCAPLUS

DN 141:372541

TI Materials for organic electroluminescent devices

IN Kawabata, Yuichiro; Momota, Junji; Takahashi, Naoto

PA Tokuyama Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 48 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004292766	A	20041021	JP 2003-90642	20030328
PRAI	JP 2003-90642		20030328		

OS MARPAT 141:372541

AB The materials comprise light-emitting organic group- or charge-transporting organic group-containing cyclic aryl ether derivs. or cyclic aryl sulfide derivs.

The devices have light-emitting layers and optionally charge-transporting layers between anodes and cathodes, wherein the light-emitting layers and/or the charge-transporting layers contain the above materials. The materials are spin-coated to give high-purity films easily.

TI Materials for organic electroluminescent devices

ST cyclic aryl ether sulfide deriv org electroluminescent device; light emitting layer org electroluminescent device; charge transporting layer org electroluminescent device

IT Ethers, uses

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(aromatic; cyclic aryl ether or sulfide derivs. for light-emitting layers and/or the charge-transporting layers in organic electroluminescent devices)

IT Thioethers

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(aryl; cyclic aryl ether or sulfide derivs. for light-emitting layers and/or the charge-transporting layers in organic electroluminescent devices)

IT Electroluminescent devices  
(cyclic aryl ether or sulfide derivs. for light-emitting layers and/or the charge-transporting layers in organic electroluminescent devices)

IT Luminescent substances  
(electroluminescent; cyclic aryl ether or sulfide derivs. for light-emitting layers and/or the charge-transporting layers in organic electroluminescent devices)

IT Coating process  
(spin, layer formed by; cyclic aryl ether or sulfide derivs. for light-emitting layers and/or the charge-transporting layers in organic electroluminescent devices)

IT 777947-25-8P 777947-26-9P 777947-27-0P 777947-28-1P 777947-29-2P  
777947-30-5P 777947-31-6P 777947-32-7P 777947-33-8P 777947-34-9P  
777947-35-0P 777947-36-1P 778584-79-5P 778584-80-8P 778639-09-1P  
778639-12-6P 778640-40-7P 778640-62-3P 778640-72-5P 778640-73-6P  
778640-75-8P 778640-77-0P 778640-78-1P 778640-84-9P 778640-85-0P  
778640-86-1P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(cyclic aryl ether or sulfide derivs. for light-emitting layers and/or the charge-transporting layers in organic electroluminescent devices)

IT 124729-98-2 167218-30-6 204327-06-0 352359-43-4 499985-03-4  
499985-05-6 499985-07-8 499985-08-9 546630-93-7 546631-87-2  
546631-93-0 546631-99-6 546632-24-0 546632-40-0 546632-59-1  
546632-77-3 546633-57-2 546633-76-5 546633-81-2 546634-36-0  
547735-92-2 777947-12-3 777947-13-4 777947-14-5 777947-15-6  
777947-16-7 777947-17-8 777947-18-9 777947-19-0 777947-20-3  
777947-21-4 777947-22-5 777947-23-6 777947-24-7 778584-78-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(cyclic aryl ether or sulfide derivs. for light-emitting layers and/or the charge-transporting layers in organic electroluminescent devices)

L5 ANSWER 48 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:848442 HCAPLUS

DN 142:38611

TI Synthesis and luminescent properties of a new twisted copolymer containing phenylenevinylene and spirobifluorene

AU Huang, Bing; Li, Jun; Shao, Pin; Qin, Jingui; Jiang, Zuoquan; Yu, Gui; Liu, Yunqi

CS Department of Chemistry, Wuhan University, Wuhan, 430072, Peop. Rep. China

SO Chemistry Letters (2004), 33(10), 1376-1377

CODEN: CMLTAG; ISSN: 0366-7022

PB Chemical Society of Japan

DT Journal

LA English

AB A new twisted polymer, poly[9,9'-spirobifluoren-2,2'-ylenevinylene-alt-2,5-di(n-butoxy)-1,4-phenylene-vinylene] (PSBF-PV), which consists of phenylenevinylene chromophores linked through 9,9'-spirobifluorene, was synthesized through the Horner-Emmons condensation. PSBF-PV showed strong green emission in solution and film. The single-layer light-emitting diode (LED) exhibited weak emission, and an improved performance with the maximum external quantum efficiency of 0.25% and luminance maxima of 1168 cd/m<sup>2</sup> was achieved using Alq<sub>3</sub> as electron injection layer in double layer LED for PSBF-PV.

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Synthesis and luminescent properties of a new twisted copolymer containing phenylenevinylene and spirobifluorene

ST phenylenevinylene spirobifluorene copolymer luminescence

IT Cyclic voltammetry

Electric current-potential relationship

Luminescence

Optical absorption

(synthesis and luminescent properties of twisted copolymer containing phenylenevinylene and spirobifluorene)

IT Poly(arylenealkenylenes)

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and luminescent properties of twisted copolymer containing phenylenevinylene and spirobifluorene)

IT 803712-15-4P 803712-16-5P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and luminescent properties of twisted copolymer containing phenylenevinylene and spirobifluorene)

L5 ANSWER 49 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:801292 HCAPLUS

DN 141:304034

TI Organic electroluminescent materials and high-luminance electroluminescent devices therewith

IN Narihiro, Harunori; Tamano, Michiko; Kurata, Ryuichiro

PA Toyo Ink Mfg. Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004269696	A	20040930	JP 2003-62618	20030310
PRAI	JP 2003-62618		20030310		

AB The materials, forming emitting layers of organic LED, are polymers having unit derived from I (X = single bond, C1-10 alkyl, O, S, N; R1-R9 = H or substituent essentially including condensed aromatic heterocycle). The emitting layers may contain phosphorescent materials.

TI Organic electroluminescent materials and high-luminance electroluminescent devices therewith

ST electroluminescent device fluorene polymer emitting layer; carbazole branched fluorene polymer electroluminescent material

IT Luminescent substances

(electroluminescent; high-luminance organic LED containing aromatic heterocycle-branched fluorene polymers in emitting layers)

IT Electroluminescent devices

(high-luminance organic LED containing aromatic heterocycle-branched fluorene

polymers in emitting layers)

IT 761459-34-1P

RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(emitting layers; high-luminance organic LED containing aromatic heterocycle-branched fluorene polymers in emitting layers)

IT 761459-36-3 761459-38-5

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(emitting layers; high-luminance organic LED containing aromatic heterocycle-branched fluorene polymers in emitting layers)

L5 ANSWER 50 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:767947 HCAPLUS

DN 141:395118

TI Laser threshold reduction in an all-spiro guest-host system

AU Schneider, D.; Rabe, T.; Riedl, T.; Dobbertin, T.; Kroeger, M.; Becker, E.; Johannes, H.-H.; Kowalsky, W.; Weimann, T.; Wang, J.; Hinze, P.

CS Institut fuer Hochfrequenztechnik, Technische Universitaet Braunschweig,

Braunschweig, D-38092, Germany  
 SO Applied Physics Letters (2004), 85(10), 1659-1661  
 CODEN: APPLAB; ISSN: 0003-6951  
 PB American Institute of Physics  
 DT Journal  
 LA English  
 AB The authors report on stimulated emission in an all-spiro guest-host (G-H) system. Different doping concns. of the guest mol. 2,2',7,7'-tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene in the host material 2,7-bis(biphenyl-4-yl)-2',7'-di-tert-butyl-9,9'-spirobifluorene were studied for amplified spontaneous emission (ASE) and distributed feedback (DFB) lasing. The ASE maximum could be shifted over 20 nm by variation of the doping concentration DFB lasing is observed in the pure host, the pure guest

material, and in the G-H system. The laser wavelength can be tuned from 401.5 to 529.3 nm by changing the grating period of the Bragg reflector and the doping concentration A min. threshold energy d. of 6  $\mu\text{J}/\text{cm}^2$  was observed in second-order DFB structures for a doping concentration of 1.1%. In first-order DFB operation the threshold value could be further lowered to 320 nJ/cm<sup>2</sup>. These results render this material system an excellent candidate for stable and widely tunable lasers in the visible spectrum.

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

ST fluorene spiro biphenyl deriv guest host system laser threshold;  
 refractive index fluorene spiro biphenyl deriv guest host system;  
 stimulated emission fluorene spiro biphenyl deriv guest host system;  
 luminescence fluorene spiro biphenyl deriv guest host system; UV  
 visible spectra fluorene spiro biphenyl deriv  
 IT Luminescence  
 Optical gain  
 Refractive index  
 Stimulated emission  
 (of all-spiro guest-host system)  
 IT 296269-66-4, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-  
 bifluorene  
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
 (2,7-bis(biphenyl-4-yl)-2',7'-di-tert-butyl-9,9'-spirobifluorene  
 containing; laser threshold reduction in an all-spiro guest-host system)

L5 ANSWER 51 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2004:679930 HCAPLUS  
 DN 141:207668  
 TI Preparation and use of polymers containing carbazole groups and their  
 blends  
 PA Covion Organic Semiconductors GmbH, Germany  
 SO Ger. Offen., 31 pp.  
 CODEN: GWXXBX

DT Patent  
 LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10304819	A1	20040819	DE 2003-10304819	20030206
	WO 2004070772	A2	20040819	WO 2004-EP994	20040204
	WO 2004070772	A3	20041202		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI				
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,				

GQ, GW, ML, MR, NE, SN, TD, TG

EP 1592729	A2	20051109	EP 2004-707888	20040204
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1747981	A	20060315	CN 2004-80003794	20040204
JP 2006516666	T	20060706	JP 2006-501725	20040204
US 2006149022	A1	20060706	US 2005-544437	20050823
PRAI DE 2003-10304819	A	20030206		
WO 2004-EP994	W	20040204		

AB The title polymers, with steep current-voltage curves and useful in light-emitting diodes, are prepared The reaction of 1-bromo-4-tert-butylbenzene with carbazole in refluxing xylene in the presence of K<sub>3</sub>PO<sub>4</sub> and tert-Bu<sub>3</sub>P gave 68% 9-(4-tert-butylphenyl)carbazole, bromination of which with N-bromosuccinimide in CH<sub>2</sub>Cl<sub>2</sub> at 0° gave 66% corresponding 3,6-dibromo derivative (I). Refluxing monomer II, monomer III 1.6, I 0.8, and N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)-4,4'-biphenyldiamine 0.8 mmol in dioxane-PhMe-H<sub>2</sub>O in the presence of K phosphate, Pd(OAc)<sub>2</sub>, and (o-MeC<sub>6</sub>H<sub>4</sub>)<sub>3</sub>P and end-capping with 100 mg benzenboronic acid and 0.2 mL PhBr gave 96% polymer with number-average mol. weight 156,000 and polydispersity 3.7.

IT Luminescent substances  
(electroluminescent; preparation of polymers containing carbazole groups for use in electroluminescent materials)

IT Electroluminescent devices  
(preparation of polymers containing carbazole groups for use in light-emitting diodes)

IT 741293-58-3 741293-61-8  
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)  
(preparation and use of polymers containing carbazole groups and their blends)

L5 ANSWER 52 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:667617 HCAPLUS

DN 141:332567

TI Tuning Wavelength: Synthesis and Characterization of Spiro-DPVF-Containing Polyfluorenes and Applications in Organic Light-Emitting Diodes

AU Su, Huei-Jen; Wu, Fang-Iy; Shu, Ching-Fong

CS Department of Applied Chemistry, National Chiao Tung University, Hsin-Chu, 30035, Taiwan

SO Macromolecules (2004), 37(19), 7197-7202  
CODEN: MAMOBX; ISSN: 0024-9297

PB American Chemical Society

DT Journal

LA English

AB We have synthesized polyfluorene copolymers containing bis(2,2-diphenylvinyl)fluorene pendent groups attached orthogonally to the C-9 positions of fluorene units. These polymers possess high glass transition temps. and good thermal stability. The results from PL studies indicate that most excitons formed in the polyfluorene backbone by direct photoexcitation are likely to migrate to lower-energy pendent groups, from which emission occurs. An organic light-emitting device using the copolymer PF4-DPVF as the emitting layer exhibits a voltage-independent and stable blue emission with color coordinates (0.15, 0.17) at 11 V, with a maximum brightness of 3137 cd/m<sup>2</sup> at 9 V (262 mA/cm<sup>2</sup>) and a maximum external quantum efficiency of 1.06%. In addition, we blended PF4-DPVF as the host material with 0.5 weight % of MEH-PPV to realize a white electroluminescence having CIE coordinates of (0.29,0.34) and a maximum brightness of 3258 cd/m<sup>2</sup> (119 mA/cm<sup>2</sup>). We demonstrate that both Forster energy transfer and direct charge trapping/recombination on the MEH-PPV guest are responsible for the

observed EL.

RE.CNT 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB We have synthesized polyfluorene copolymers containing bis(2,2-diphenylvinyl)fluorene pendent groups attached orthogonally to the C-9 positions of fluorene units. These polymers possess high glass transition temps. and good thermal stability. The results from PL studies indicate that most excitons formed in the polyfluorene backbone by direct photoexcitation are likely to migrate to lower-energy pendent groups, from which emission occurs. An organic light-emitting device using the copolymer PF4-DPVF as the emitting layer exhibits a voltage-independent and stable blue emission with color coordinates (0.15, 0.17) at 11 V, with a maximum brightness of 3137 cd/m<sup>2</sup> at 9 V (262 mA/cm<sup>2</sup>) and a maximum external quantum efficiency of 1.06%. In addition, we blended PF4-DPVF as the host material with 0.5 weight % of MEH-PPV to realize a white electroluminescence having CIE coordinates of (0.29, 0.34) and a maximum brightness of 3258 cd/m<sup>2</sup> (119 mA/cm<sup>2</sup>). We demonstrate that both Forster energy transfer and direct charge trapping/recombination on the MEH-PPV guest are responsible for the observed EL.

IT Current density

Electroluminescent devices

Glass transition temperature

Luminescence, electroluminescence

Photoexcitation

Thermal stability

UV and visible spectra

(synthesis and characterization of Spiro-DPVF-containing polyfluorenes and applications in organic light-emitting diodes)

IT 773877-93-3P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in preparation of Spiro-DPVF-containing polyfluorenes and applications in organic light-emitting diodes)

IT 773877-97-7P

RL: DEV (Device component use); POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(synthesis and characterization of Spiro-DPVF-containing polyfluorenes and applications in organic light-emitting diodes)

IT 773877-95-5P 773877-99-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and characterization of Spiro-DPVF-containing polyfluorenes and applications in organic light-emitting diodes)

L5 ANSWER 53 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:587037 HCAPLUS

DN 141:131068

TI Electroluminescent compositions, and their organic electroluminescent devices emitting light from green to yellow

IN Onikubo, Shunichi; Yauchi, Hiroyuki; Yagi, Tamao; Kaneko, Tetsuya; Tanaka, Hiroaki; Takada, Yasuyuki

PA Toyo Ink Mfg. Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 67 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004206893	A	20040722	JP 2002-371262	20021224
PRAI	JP 2002-371262		20021224		

AB The compns. contain (A) compds. having peaks at 475-600 nm in fluorescent spectra of their solid films and (B) compds. showing the sum of areas



(intensities)  $\leq 20\%$  at  $\leq 500$  nm and  $\geq 600$  nm, or at  $\geq 500$  nm based on total areas (intensities) at 400-800 nm in fluorescent spectrum of solid films comprising A and 5% B. Organic electroluminescent devices having emitter layers containing the compns. containing 1:0.1 perylene derivative and diketopyrrolopyrrole derivative showed high luminescence intensity and good durability in repeated use.

TI Electroluminescent compositions, and their organic electroluminescent devices emitting light from green to yellow

AB The compns. contain (A) compds. having peaks at 475-600 nm in fluorescent spectra of their solid films and (B) compds. showing the sum of areas (intensities)  $\leq 20\%$  at  $\leq 500$  nm and  $\geq 600$  nm, or at  $\geq 500$  nm based on total areas (intensities) at 400-800 nm in fluorescent spectrum of solid films comprising A and 5% B. Organic electroluminescent devices having emitter layers containing the compns. containing 1:0.1 perylene derivative and diketopyrrolopyrrole derivative showed high luminescence intensity and good durability in repeated use.

ST perylene diketopyrrolopyrrole org electroluminescent device; green yellow emitting org electroluminescent device

IT Luminescent substances (electroluminescent; electroluminescent compns. for organic electroluminescent devices showing high luminescence intensity and durability in repeated use)

IT Electroluminescent devices (from green to yellow; electroluminescent compns. for organic electroluminescent devices showing high luminescence intensity and durability in repeated use)

IT 19205-19-7 41175-45-5 149247-31-4 155306-71-1 158782-55-9, Tetrabenzofg,ij,pq,uv]pentaphene 184101-39-1 189263-85-2 194296-06-5 227009-37-2 252756-13-1 307303-24-8 519180-18-8 519180-37-1 536761-34-9 536761-41-8 536761-56-5 724789-12-2, 2,2'-Biperylene 724789-15-5, Perylo[1,12-bcd:6,7-b'c'd']difuran 724789-18-8 724789-20-2 724789-23-5 724789-25-7 724789-28-0 724789-30-4 724789-31-5 724789-33-7 724789-36-0 724789-45-1  
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (dopant; electroluminescent compns. for organic electroluminescent devices showing high luminescence intensity and durability in repeated use)

IT 2085-33-8 23467-27-8 96158-94-0 96159-17-0 107680-84-2 107680-85-3 123847-85-8 175395-59-2 188049-37-8 194214-31-8 205104-13-8 227009-35-0 227009-36-1 384343-78-6 384343-80-0 474067-56-6 477719-72-5 536761-33-8 536761-36-1 536761-38-3 536761-39-4 536761-55-4 724788-95-8 724788-97-0 724788-98-1 724789-00-8 724789-02-0 724789-03-1 724789-05-3 724789-60-0 724789-62-2 724789-65-5  
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses) (host; electroluminescent compns. for organic electroluminescent devices showing high luminescence intensity and durability in repeated use)

L5 ANSWER 54 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2004:569984 HCAPLUS  
 DN 141:131054  
 TI Organic electroluminescent elements and spirobifluorene derivatives useful in them  
 IN Vestweber, Horst; Gerhard, Anja; Stoessel, Philipp; Spreitzer, Hubert  
 PA Covion Organic Semiconductors GmbH, Germany  
 SO PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004058911	A2	20040715	WO 2003-EP13927	20031209
	WO 2004058911	A3	20051208		
	W: CN, JP, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
	EP 1578885	A2	20050928	EP 2003-782338	20031209
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
	CN 1756824	A	20060405	CN 2003-80107453	20031209
	JP 2006511939	T	20060406	JP 2004-562714	20031209
	US 2006063027	A1	20060323	US 2005-540461	20050721
PRAI	DE 2002-10261545	A	20021223		
	WO 2003-EP13927	W	20031209		

OS MARPAT 141:131054

AB Organic electroluminescent devices are described in which the emitting layer consists of a mixture of  $\geq 1$  hole-transporting material and  $\geq 1$  emitting material in a weight ratio (hole-transporting material:emitting material) of 1:99 to 99:1 and that  $\geq 1$  of the substances contains  $\geq 1$  spiro-9,9'-bifluorene unit. Spiro-9,9'-bifluorene derivs. suitable for use in electroluminescent devices are also described.

TI Organic electroluminescent elements and spirobifluorene derivatives useful in them

AB Organic electroluminescent devices are described in which the emitting layer consists of a mixture of  $\geq 1$  hole-transporting material and  $\geq 1$  emitting material in a weight ratio (hole-transporting material:emitting material) of 1:99 to 99:1 and that  $\geq 1$  of the substances contains  $\geq 1$  spiro-9,9'-bifluorene unit. Spiro-9,9'-bifluorene derivs. suitable for use in electroluminescent devices are also described.

ST org electroluminescent device emitting layer mixt spirobifluorene deriv

IT Electroluminescent devices  
(organic electroluminescent elements with emitting layers formed from hole transporting-emitting material mixts. and spirobifluorene derivs. useful in them)

IT Spiro compounds  
RL: DEV (Device component use); USES (Uses)  
(organic electroluminescent elements with emitting layers formed from hole transporting-emitting material mixts. and spirobifluorene derivs. useful in them)

IT 81-88-9 91-64-5, Coumarin 92-24-0, Naphthacene 120-12-7, Anthracene, uses 129-00-0, Pyrene, uses 135-48-8, Pentacene 198-55-0, Perylene 517-51-1, Rubrene 1047-16-1, Quinacridone 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 7440-06-4D, Platinum, compds. 7440-53-1D, Europium, compds. 13978-85-3 14642-34-3, Tris(8-hydroxyquinolinato)gallium 51325-91-8, 4-(Dicyanomethylene)-2-methyl-6-(4-dimethylaminostyryl)-4H-pyran 58328-31-7 73299-03-3D, Benzothiadiazole, derivs. 94928-86-6, Tris(2-phenylpyridine)iridium 142289-08-5, 4,4'-Bis(2,2-diphenylvinyl)biphenyl 189363-47-1 200052-70-6, DCJTB 212117-54-9 214078-86-1 296269-66-4 643007-04-9 723285-19-6 723285-20-9 723285-21-0 723285-22-1 723285-23-2 723285-24-3 723285-25-4

RL: DEV (Device component use); USES (Uses)  
(organic electroluminescent elements with emitting layers formed from hole transporting-emitting material mixts. and spirobifluorene derivs. useful in them)

L5 ANSWER 55 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2004:458480 HCAPLUS  
DN 141:157671

TI Light emitting polyfluorene derivatives with three different structural configurations

AU Park, Joo Hyun; Ko, Heung Cho; Kim, Joo Hyun; Lee, Hoosung  
CS Department of Chemistry, Sogang University, Seoul, 121-742, S. Korea  
SO Synthetic Metals (2004), 144(2), 193-199  
CODEN: SYMEDZ; ISSN: 0379-6779

PB Elsevier Science B.V.

DT Journal

LA English

AB Polyfluorene derivs. were designed by connecting the spirobifluorene or 9,9-dibenzylfluorene moieties via two different link positions. A linear-fully conjugated poly[(9,9'-spirobifluorene-2,7-diyl)-alt-co-(1,4-(2,5-di-n-dodecyloxy)phenylenevinylene)] and a kinked-locally conjugated poly[(9,9'-spirobifluorene-2,2'-diyl)-alt-co-(1,4-(2,5-di-n-dodecyloxy)phenylenevinylene)] were synthesized by growing polymers via positions (2 and 7) and (2 and 2') of spirobifluorene. Their absorption and emission spectra were substantially red-shifted compared with the alternating copolymers of spirobifluorene and fluorene due to extended  $\pi$ -conjugation to the phenylenevinylene units. Especially, no long wavelength emission tail was observed in the EL spectra of the two polymers presumably because the spiro-annulated fluorene and the dodecyloxy moieties suppressed interchain interactions. A linear-fully conjugated poly[(9,9-dibenzylfluorene-2,7-diyl)-alt-co-(9,9-di-n-hexylfluorene-2,7-diyl)] were synthesized by growing polymers via positions 2 and 7 of 9,9-dibenzylfluorene. This polymer showed electronic spectra almost identical to those of poly(9,9-di-n-hexylfluorene-2,7-diyl) and exhibited a long-wavelength tail in the EL spectrum. This indicates that the presence of the pendent dibenzyl group does not influence the electronic structure of polyfluorene backbone nor suppresses the interchain interactions. A linear-locally conjugated poly[(9,9-bis(4-yl-benzyl)-fluorene)-alt-co-(9,9-di-n-hexyl-fluorene-2,7-diyl)] was synthesized by growing polymers via para-positions of the two dibenzyl groups in 9,9-dibenzylfluorene. Its absorption and emission spectra were blue-shifted due to the shorter effective  $\pi$ -conjugation length and the emission tail was not observed probably due to reduction of interchain interactions by orthogonal orientation of the fluorene units to the main chain.

RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Luminescence  
Luminescence, electroluminescence  
(light emitting polyfluorene derivs. with three different structural configurations)

IT 729569-86-2P 729569-87-3P 729569-88-4P 729569-89-5P  
729569-91-9P 729569-92-0P 729569-93-1P 729569-94-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(light emitting polyfluorene derivs. with three different structural configurations)

L5 ANSWER 56 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2004:367239 HCAPLUS  
DN 140:375687

TI Arylamine-containing conjugated polymers, their preparation and use.  
IN Buesing, Arne; Breuning, Ester; Spreitzer, Hubert; Becker, Heinrich;  
Haase, Corinna

PA Covion Organic Semiconductors GmbH, Germany

SO Ger. Offen., 25 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10249723	A1	20040506	DE 2002-10249723	20021025
	WO 2004037887	A2	20040506	WO 2003-EP11510	20031017
	WO 2004037887	A3	20040527		
	W: CN, JP, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
	EP 1558662	A2	20050803	EP 2003-776866	20031017
	EP 1558662	B1	20061213		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
	CN 1708528	A	20051214	CN 2003-80102026	20031017
	JP 2006504814	T	20060209	JP 2004-545870	20031017
	US 2006058494	A1	20060316	US 2005-532465	20050607
PRAI	DE 2002-10249723	A	20021025		
	WO 2003-EP11510	W	20031017		

AB The title polymers, useful as electroluminescent materials in passive matrix display (OLEDs, OFETs, OTFTs, solar cells and organic integrated circuits) contain  $\geq 1$  mol.% of the units I (Ar1, Ar3 = optionally substituted C2-40 aromatic and heteroarom. rings, Ar2, Ar4 = Ar1, Ar3 or optionally substituted stilbenylene- or tolylene-fragments, Ar-kond = conjugated aromatic system, consisting of  $\geq 2$  rings and containing 9-40 C- or hetero-atoms) among other structure units including aromatic and heteroarom. fragments, metallo-complexes and complexes of transition metals and metals of VIII-X group exhibit improved operation life span and high luminescence efficiency especially at high radiation d. Thus, heating 1.6103 g of II, 1.0825 g of III, 0.3098 g of N,N'-Bis-(4-bromophenyl)-N,N'-bis-(4-methylnaphthyl)biphenyl-4,4'-diamine and 1.96 g of K2HPO4 in a mixture dioxane/toluene/H2O in the presence of Pd(OAc)2 and P(o-tolyl)3 for 2.5 h gives (after purification and distillation) polymer with

mol. weight 1,300,000 having life time 2500 h at radiation d. 100 Cd/m2.

AB The title polymers, useful as electroluminescent materials in passive matrix display (OLEDs, OFETs, OTFTs, solar cells and organic integrated circuits) contain  $\geq 1$  mol.% of the units I (Ar1, Ar3 = optionally substituted C2-40 aromatic and heteroarom. rings, Ar2, Ar4 = Ar1, Ar3 or optionally substituted stilbenylene- or tolylene-fragments, Ar-kond = conjugated aromatic system, consisting of  $\geq 2$  rings and containing 9-40 C- or hetero-atoms) among other structure units including aromatic and heteroarom. fragments, metallo-complexes and complexes of transition metals and metals of VIII-X group exhibit improved operation life span and high luminescence efficiency especially at high radiation d. Thus, heating 1.6103 g of II, 1.0825 g of III, 0.3098 g of N,N'-Bis-(4-bromophenyl)-N,N'-bis-(4-methylnaphthyl)biphenyl-4,4'-diamine and 1.96 g of K2HPO4 in a mixture dioxane/toluene/H2O in the presence of Pd(OAc)2 and P(o-tolyl)3 for 2.5 h gives (after purification and distillation) polymer with

mol. weight 1,300,000 having life time 2500 h at radiation d. 100 Cd/m2.

ST arylamine conjugated polymer improved electroluminescent material life; enhanced luminescence efficiency passive matrix display; fluorene arylamine conjugated polymer spirobisfluorene arylamine conjugated polymer manuf

IT Field effect transistors

Integrated circuits

Semiconductor lasers

Solar cells

Thin film transistors

(arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT Polyamines  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT Electroluminescent devices  
 (displays; arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT Luminescent screens  
 (electroluminescent; arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT Transition metal complexes  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (polymer derivs; arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT 681829-72-1P 681829-73-2P 681829-74-3P  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT 227187-55-5P 681829-66-3P 681829-67-4P 681829-70-9P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (monomer precursor; arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT 523-27-3, 9,10-Dibromoanthracene 531-91-9, N,N'-Diphenylbenzidine  
 939-26-4, 2-Bromomethylnaphthalene 41499-91-6, 1-(Pentamethylphenyl)naphthalene 51793-09-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (monomer precursor; arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

IT 681829-68-5P 681829-69-6P 681829-71-0P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (monomer; arylamine-containing conjugated polymers with improved operation life span and high luminescence efficiency useful in passive matrix display)

L5 ANSWER 57 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:162750 HCAPLUS

DN 140:225475

TI Luminescent spiro-dimer and organic light-emitting device comprising the same

IN Kim, Jung-Soo

PA Neoviewkolon Co., Ltd., S. Korea

SO PCT Int. Appl., 25 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004016709	A1	20040226	WO 2003-KR1640	20030814
	W:			AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS,	

LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,  
KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,  
FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,  
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

KR 2004016274	A	20040221	KR 2002-48545	20020816
AU 2003253451	A1	20040303	AU 2003-253451	20030814
US 2005238909	A1	20051027	US 2005-524410	20050214

PRAI KR 2002-48545 A 20020816  
WO 2003-KR1640 W 20030814

OS MARPAT 140:225475

AB Luminescent spiro-dimers are described by the general formula I  
(K = a linking group; R = independently selected H, halogen, CN, CO<sub>2</sub>R\*,  
OR\*, NR\*<sub>2</sub>, SR\*, (un)substituted C1-4 alkyl, (un)substituted C4-24  
(hetero)aryl, (un)substituted C4-24 heterocycli, or (un)substituted C4-24  
fused ring group; and R\* = H, halogen, (un)substituted C1-6 alkyl,  
(un)substituted C1-6 alkenyl, (un)substituted C4-24 aryl, (un)substituted  
C4-24 heteroaryl, or (un)substituted C4-24 heterocyclic group). Organic  
light-emitting devices comprising a first electrode having a high work  
function; a second electrode having a low work function; and ≥1  
organic layer formed between the first and second electrodes are described in  
which the organic layer includes the spiro-dimers. The luminescent  
spiro-dimers may be employed as the host material or dopant for a  
light-emitting layer, or in a hole-injecting layer, hole-transporting  
layer, electron-injecting layer, or electron-transporting layer.

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Luminescent spiro-dimer and organic light-emitting device  
comprising the same

AB Luminescent spiro-dimers are described by the general formula I  
(K = a linking group; R = independently selected H, halogen, CN, CO<sub>2</sub>R\*,  
OR\*, NR\*<sub>2</sub>, SR\*, (un)substituted C1-4 alkyl, (un)substituted C4-24  
(hetero)aryl, (un)substituted C4-24 heterocycli, or (un)substituted C4-24  
fused ring group; and R\* = H, halogen, (un)substituted C1-6 alkyl,  
(un)substituted C1-6 alkenyl, (un)substituted C4-24 aryl, (un)substituted  
C4-24 heteroaryl, or (un)substituted C4-24 heterocyclic group). Organic  
light-emitting devices comprising a first electrode having a high work  
function; a second electrode having a low work function; and ≥1  
organic layer formed between the first and second electrodes are described in  
which the organic layer includes the spiro-dimers. The luminescent  
spiro-dimers may be employed as the host material or dopant for a  
light-emitting layer, or in a hole-injecting layer, hole-transporting  
layer, electron-injecting layer, or electron-transporting layer.

ST luminescent spiro dimer org light emitting device

IT Luminescent substances  
(luminescent spiro-dimers and organic light-emitting devices  
employing them)

IT Spiro compounds  
RL: TEM (Technical or engineered material use); USES (Uses)  
(luminescent spiro-dimers and organic light-emitting devices  
employing them)

IT Electroluminescent devices  
(organic; luminescent spiro-dimers and organic light-emitting  
devices employing them)

IT 92-66-0, 4-Bromobiphenyl 92-86-4, 4,4'-Dibromobiphenyl 100-52-7,  
Benzaldehyde, reactions 121-43-7, Trimethylborate 486-25-9, Fluorenone  
589-15-1, 4-Bromobenzyl bromide 603-35-0, Triphenylphosphine, reactions  
2052-07-5, 2-Bromobiphenyl 2132-83-4 22824-82-4 171408-76-7  
236389-21-2 664345-23-7  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(luminescent spiro-dimers and organic light-emitting devices

employing them)

IT 159-66-0P, 9,9'-Spirobifluorene 5122-94-1P 59625-59-1P  
664345-21-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(luminescent spiro-dimers and organic light-emitting devices employing them)

IT 664345-18-0P, 2,2''-Bi-9,9'-spirobi[9H-fluorene] 664345-19-1P  
664345-20-4P 664345-22-6P 664345-24-8P 664345-25-9P  
664345-26-0P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(luminescent spiro-dimers and organic light-emitting devices employing them)

L5 ANSWER 58 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2003:970139 HCAPLUS  
DN 140:311623  
TI Simulating electronic and optical processes in multilayer organic light-emitting devices  
AU Ruhstaller, Beat; Beierlein, Tilman; Riel, Heike; Karg, Siegfried; Scott, J. Campbell; Riess, Walter  
CS IBM Zurich Research Laboratory, Rueschlikon, 8803, Switz.  
SO IEEE Journal of Selected Topics in Quantum Electronics (2003), 9(3), 723-731  
CODEN: IJSQEN; ISSN: 1077-260X  
PB Institute of Electrical and Electronics Engineers  
DT Journal  
LA English  
AB A detailed investigation of the device operation of a blue-emitting multilayer organic light-emitting device (OLED) using an electronic device model is presented. In particular, a transient electroluminescence overshoot at turn-on is found to originate from charge and recombination confinement effects at internal interfaces. The location of the emission zone is obtained from the electronic model and its exptl. determination exemplified by a sensing layer method. Moreover, the optimization of emission intensity and color is discussed for a red-emitting OLED. The thin-film interference effects are analyzed with help of an optical device model.

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB A detailed investigation of the device operation of a blue-emitting multilayer organic light-emitting device (OLED) using an electronic device model is presented. In particular, a transient electroluminescence overshoot at turn-on is found to originate from charge and recombination confinement effects at internal interfaces. The location of the emission zone is obtained from the electronic model and its exptl. determination exemplified by a sensing layer method. Moreover, the optimization of emission intensity and color is discussed for a red-emitting OLED. The thin-film interference effects are analyzed with help of an optical device model.

ST simulation electronic optical process multilayer org light emitting device; electroluminescence overshoot org LED charge recombination confinement interface

IT Luminescence, electroluminescence  
(blue; simulation of electronic and optical processes in multilayer organic light-emitting devices with transient electroluminescence overshoot at turn-on)

IT Electroluminescent devices  
(simulation of electronic and optical processes in multilayer organic light-emitting devices)

IT Electron mobility  
 Electron-hole recombination  
 Hole mobility  
 Solid-solid interface  
 (simulation of multilayer organic LED with transient  
 electroluminescence overshoot at turn-on due to charge and  
 recombination confinement effects at internal interfaces)

IT 296269-66-4  
 RL: DEV (Device component use); USES (Uses)  
 (simulation of electronic and optical processes in multilayer organic  
 blue-emitting LED based on)

L5 ANSWER 59 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:870678 HCAPLUS

DN 139:371613

TI Light-emitting compositions containing calixarenes or calixresorcinarenes  
 suitable for preparation of electroluminescent devices

IN Takahashi, Naoto; Hyakuta, Junji; Kawabata, Yuichiro

PA Tokuyama Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 38 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003313546	A	20031106	JP 2002-122730	20020424
PRAI	JP 2002-122730		20020424		
OS	MARPAT 139:371613				
AB	The comps. contain 0.1-90 weight% calixarenes or calixresorcinarenes having light-emitting organic groups or charge-transferring organic groups and 10-99.9 weight% vinylcarbazole. The preferable structures for calixarenes or calixresorcinarenes are A substituted on each benzene ring of I or II (A, B, X = H, halogen, alkyl, aryl, alkoxy with $\geq 1$ of A, B, and X being YmZ; Y = bivalent organic group; Z = light-emitting organic group, charge-transferring organic group; m = 0, 1; n = integer of 1-18).				
TI	Light-emitting compositions containing calixarenes or calixresorcinarenes suitable for preparation of electroluminescent devices				
ST	calixarene light emitting compn electroluminescent device; calixresorcinarene light emitting compn electroluminescent device				
IT	Luminescent substances (electroluminescent; light-emitting calixarene or calixresorcinarene comps. for electroluminescent devices)				
IT	Electroluminescent devices (light-emitting calixarene or calixresorcinarene comps. for electroluminescent devices)				
IT	546630-96-0P	546631-02-1P	546631-10-1P	546631-20-3P	546631-28-1P
	546631-34-9P	546631-43-0P	546631-51-0P	546631-61-2P	546631-67-8P
	546631-76-9P	546631-81-6P	546632-16-0P	546632-26-2P	546632-35-3P
	546632-42-2P	546632-48-8P	546632-62-6P	546632-74-0P	
	546632-79-5P	546633-06-1P	546633-19-6P	546633-27-6P	546633-43-6P
	546633-48-1P	546633-59-4P	547735-93-3P	547735-95-5P	547756-86-5P
	547756-88-7P	547756-90-1P	547757-01-7P	547757-04-0P	547757-07-3P
	620973-57-1P	620973-60-6P	622356-09-6P	622357-28-2P	
	RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (light-emitting calixarene or calixresorcinarene comps. for electroluminescent devices)				
IT	86-74-8, 9H-Carbazole	33895-36-2	99033-36-0	125065-71-6	
	125748-07-4	144236-45-3	154497-06-0	162301-48-6	172472-58-1
	195323-70-7	301687-16-1	546630-93-7	546630-99-3	546631-07-6
	546631-13-4	546631-16-7	546631-23-6	546631-25-8	546631-31-6



546631-37-2	546631-40-7	546631-48-5	546631-54-3	546631-64-5
546631-70-3	546631-73-6	546631-79-2	546632-13-7	546632-19-3
546632-24-0	546632-29-5	546632-32-0	546632-40-0	546632-45-5
546632-59-1	546632-65-9	546632-68-2	546632-71-7	
546632-77-3	546633-02-7	546633-09-4	546633-12-9	546633-17-4
546633-22-1	546633-31-2	546633-37-8	546633-40-3	
546633-45-8	546633-51-6	546633-54-9	546633-57-2	547735-92-2
547735-94-4	620973-78-6			

RL: RCT (Reactant); RACT (Reactant or reagent)  
(light-emitting calixarene or calixresorcinarene compns. for  
electroluminescent devices)

IT 25067-59-8, Polyvinylcarbazole

RL: TEM (Technical or engineered material use); USES (Uses)  
(light-emitting calixarene or calixresorcinarene compns. for  
electroluminescent devices)

L5 ANSWER 60 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:861938 HCAPLUS

DN 141:196735

TI Highly efficient light emitters based on the spiro concept

AU Spehr, Till; Pudzich, Robert; Fuhrmann, Thomas; Salbeck, Josef

CS Department of Science and Center for Interdisciplinary Nanostructure  
Science and Technology (CINSaT), Macromolecular Chemistry and Molecular  
Materials, University of Kassel, Kassel, D-34109, Germany

SO Organic Electronics (2003), 4(2-3), 61-69

CODEN: OERLAU; ISSN: 1566-1199

PB Elsevier Science B.V.

DT Journal

LA English

AB The authors present a comparison of different mol. glasses based on the  
spiro-concept with respect to their photoemission properties. The  
absorption and emission spectra as well as the photoluminescence  
quantum yields in solution were characterized. For thin amorphous films,  
prepared by vacuum vapor deposition, the authors examined amplified  
spontaneous emission (ASE) by optical pumping with picosecond pulses at  
337 nm. Efficient ASE emission with thresholds of down to 1  $\mu\text{J}/\text{cm}^2$  was  
observed

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB The authors present a comparison of different mol. glasses based on the  
spiro-concept with respect to their photoemission properties. The  
absorption and emission spectra as well as the photoluminescence  
quantum yields in solution were characterized. For thin amorphous films,  
prepared by vacuum vapor deposition, the authors examined amplified  
spontaneous emission (ASE) by optical pumping with picosecond pulses at  
337 nm. Efficient ASE emission with thresholds of down to 1  $\mu\text{J}/\text{cm}^2$  was  
observed

IT Fluorescence

Luminescence

UV and visible spectra

(highly efficient light emitters based on spiro concept and their  
optical properties).

IT Luminescence

(spontaneous, amplified; highly efficient light emitters based on spiro  
concept and their optical properties)

IT 171408-93-8 171408-94-9 171408-95-0 189363-47-1 214078-86-1

296269-66-4 490025-09-7 574746-63-7 574746-64-8

736982-07-3 736982-08-4

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP  
(Physical process); PROC (Process)

(highly efficient light emitters based on spiro concept and their  
optical properties)

L5 ANSWER 61 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:472573 HCAPLUS

DN 139:60162

TI Organic electroluminescent material using calixarene or calixresorciarene derivative

IN Momoda, Junji; Kawabata, Yuichiro; Otani, Toshiaki

PA Tokuyama Corporation, Japan

SO PCT Int. Appl., 140 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003050201	A1	20030619	WO 2002-JP12821	20021206
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002354442	A1	20030623	AU 2002-354442	20021206
PRAI	JP 2001-378448	A	20011212		
	JP 2002-120827	A	20020423		
	JP 2002-208112	A	20020717		
	WO 2002-JP12821	W	20021206		

OS MARPAT 139:60162

AB The invention refers to an organic electroluminescent materials suitable for spin coating, comprising. a calixarene or calixresorciarene derivative with an organic luminescent group and/or an organic charge transport group, such as 4-[1-(2,2-diphenylvinyl)- biphenyl-2-phenylvinyl]phenyl.

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

TI Organic electroluminescent material using calixarene or calixresorciarene derivative

AB The invention refers to an organic electroluminescent materials suitable for spin coating, comprising. a calixarene or calixresorciarene derivative with an organic luminescent group and/or an organic charge transport group, such as 4-[1-(2,2-diphenylvinyl)- biphenyl-2-phenylvinyl]phenyl.

ST electroluminescent material device calixarene calixresorciarene

IT Luminescent substances

(electroluminescent; organic electroluminescent material using calixarene or calixresorciarene derivative)

IT Electroluminescent devices

(organic electroluminescent material using calixarene or calixresorciarene derivative)

IT Metacyclophanes

RL: DEV (Device component use); USES (Uses)

(organic electroluminescent material using calixarene or calixresorciarene derivative)

IT	546630-96-0P	546631-02-1P	546631-10-1P	546631-20-3P	546631-28-1P
	546631-34-9P	546631-43-0P	546631-51-0P	546631-61-2P	546631-67-8P
	546631-73-6P	546631-76-9P	546631-81-6P	546631-90-7P	546631-96-3P
	546632-02-4P	546632-08-0P	546632-16-0P	546632-26-2P	546632-35-3P
	546632-42-2P	546632-48-8P	546632-54-6P	546632-56-8P	
	546632-62-6P	546632-74-0P	546632-79-5P	546632-87-5P	
	546632-93-3P	546633-06-1P	546633-19-6P	546633-27-6P	546633-43-6P

546633-48-1P 546633-59-4P 546633-66-3P 546633-70-9P 546633-78-7P  
 547735-93-3P 547735-95-5P 547756-86-5P 547756-88-7P 547756-90-1P  
 547756-92-3P 547756-97-8P 547756-99-0P 547757-01-7P 547757-04-0P  
 547757-05-1P 547757-07-3P 547757-08-4P 547757-21-1P 547757-32-4P  
 547757-36-8P 547757-37-9P 547757-39-1P 547757-42-6P 547757-43-7P  
 547757-44-8P 547757-46-0P 547757-47-1P 547757-48-2P 547757-49-3P  
 547757-50-6P 547757-51-7P 547757-52-8P 547757-53-9P 547757-54-0P  
 547757-55-1P 547757-59-5P 547757-63-1P 547757-64-2P 547757-65-3P  
 547757-66-4P 547757-98-2P 547758-22-5P 547758-61-2P 547759-00-2P  
 547759-52-4P 547759-75-1P 547760-07-6P 547760-38-3P 547761-00-2P  
 547761-27-3P 547761-55-7P 547761-91-1P 547762-32-3P 547762-84-5P  
 547763-30-4P 547763-53-1P 547763-57-5P 547763-69-9P 547763-70-2P  
 547763-71-3P

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(organic electroluminescent material using calixarene or calixresorciarene derivative)

IT 86-74-8, 9H-Carbazole 101-23-5 328-20-1 500-41-4 1205-64-7  
 33895-36-2 99033-36-0 125065-71-6 125748-07-4 144236-45-3  
 146823-42-9 154497-06-0 162301-48-6 167218-30-6 172472-58-1  
 204327-06-0 207447-39-0 301687-16-1 309715-34-2 325492-24-8  
 352359-43-4 546630-93-7 546630-99-3 546631-07-6 546631-13-4  
 546631-16-7 546631-23-6 546631-25-8 546631-31-6 546631-37-2  
 546631-40-7 546631-48-5 546631-54-3 546631-64-5 546631-70-3  
 546631-79-2 546631-84-9 546631-87-2 546631-93-0 546631-99-6  
 546632-05-7 546632-13-7 546632-19-3 546632-24-0 546632-29-5  
 546632-32-0 546632-40-0 546632-45-5 546632-51-3 546632-59-1  
 546632-65-9 546632-68-2 546632-71-7 546632-77-3 546632-82-0  
 546632-90-0 546632-96-6 546632-99-9 546633-02-7 546633-09-4  
 546633-12-9 546633-17-4 546633-22-1 546633-31-2 546633-37-8  
 546633-40-3 546633-45-8 546633-51-6 546633-54-9  
 546633-57-2 546633-73-2 546633-76-5 546633-81-2 546633-84-5  
 546633-90-3 546633-93-6 546633-96-9 546633-99-2  
 546634-02-0 546634-05-3 546634-08-6 546634-11-1 546634-23-5  
 546634-30-4 546634-33-7 546634-36-0 546634-39-3 546634-44-0  
 546634-47-3 546634-56-4 546634-61-1 546634-64-4 546634-67-7  
 546634-69-9 546634-74-6 546634-79-1 547735-92-2 547735-94-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(organic electroluminescent material using calixarene or calixresorciarene derivative)

IT 546633-87-8P 546634-14-4P 547757-24-4P 547757-25-5P 547757-26-6P  
 547757-27-7P 547757-31-3P 548458-40-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(organic electroluminescent material using calixarene or calixresorciarene derivative)

L5 ANSWER 62 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:279807 HCAPLUS

DN 138:278145

TI Organic electroluminescent devices

IN Tominaga, Takeshi; Makiyama, Akira; Kohama, Toru

PA Toray Industries, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003109768	A	20030411	JP 2002-214876	20020724
PRAI	JP 2001-224359	A	20010725		
OS	MARPAT 138:278145				

AB. The devices comprise a pair of electrodes interposing an organic electroluminescent laminate comprising (1) (Ph<sub>2</sub>N)<sub>n</sub>X<sub>1</sub>, where each Ph ring can be substituted by R<sub>1</sub>-10, (2) -(9-R<sub>11</sub>-1H-carbazole-3,6-yl)<sub>n</sub>-, (3) (Ph<sub>2</sub>C:C)<sub>n</sub>X<sub>2</sub>, where each ring can be substituted by R<sub>12</sub>-21, (4) (9,10-diazaphenanthrene)<sub>n</sub>X<sub>3</sub>, and (5) I [R<sub>1</sub>-30 = H, alkyl, aryl, alkoxy; X<sub>1</sub>-4 = single bond, alkyl, cycloalkyl, alkylene, aryl, heterocyclic, silyl, ether, thioether; m > 4; n > 2] and having a sublimation characteristic, a triplet energy level, and a mol. weight > 600.

TI Organic electroluminescent devices

AB The devices comprise a pair of electrodes interposing an organic electroluminescent laminate comprising (1) (Ph<sub>2</sub>N)<sub>n</sub>X<sub>1</sub>, where each Ph ring can be substituted by R<sub>1</sub>-10, (2) -(9-R<sub>11</sub>-1H-carbazole-3,6-yl)<sub>n</sub>-, (3) (Ph<sub>2</sub>C:C)<sub>n</sub>X<sub>2</sub>, where each ring can be substituted by R<sub>12</sub>-21, (4) (9,10-diazaphenanthrene)<sub>n</sub>X<sub>3</sub>, and (5) I [R<sub>1</sub>-30 = H, alkyl, aryl, alkoxy; X<sub>1</sub>-4 = single bond, alkyl, cycloalkyl, alkylene, aryl, heterocyclic, silyl, ether, thioether; m > 4; n > 2] and having a sublimation characteristic, a triplet energy level, and a mol. weight > 600.

ST structure property org electroluminescent device

IT Materials

(organic; structure and property of organic electroluminescent devices)

IT Anodes

Cathodes

Electric energy

Electroluminescent devices

Glass substrates

Luminescent substances

Sublimation

(structure and property of organic electroluminescent devices)

IT 2085-33-8, Tris(8-quinolinolato)aluminum 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 50926-11-9, ITO 58328-31-7, 4,4'-Bis(N-carbazolyl)biphenyl 94928-86-6 123847-85-8, α-NPD 167218-46-4 296269-66-4, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene 365999-68-4 503307-40-2 503307-41-3 503307-42-4

RL: DEV (Device component use); USES (Uses)

(structure and property of organic electroluminescent devices)

L5 ANSWER 63 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:202698 HCAPLUS

DN 138:238568

TI Conjugated polymers containing spirobifluorene units and the use thereof

IN Becker, Heinrich; Treacher, Kevin; Spreitzer, Hubert; Falcou, Aurelie; Stoessel, Philipp; Buesing, Arne; Parham, Amir

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 58 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003020790	A2	20030313	WO 2002-EP9628	20020829
	WO 2003020790	A3	20030912		
	W: CN, JP, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	DE 10143353	A1	20030320	DE 2001-10143353	20010904
	EP 1427768	A2	20040616	EP 2002-772227	20020829
	EP 1427768	B1	20070124		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
	CN 1551895	A	20041201	CN 2002-817358	20020829

JP 2005508401	T	20050331	JP 2003-525057	20020829
US 2005038223	A1	20050217	US 2004-488625	20040910
PRAI DE 2001-10143353	A	20010904		
WO 2002-EP9628	W	20020829		

AB Spirobifluorene-type unit-containing conjugated polymer, useful in optoelectronic devices, are manufactured containing  $\geq 1$  addnl. unit that (a) improves the insertion or transportation of holes, (b) improves the insertion or transportation of electrons, (c) accomplishes both (a) and (b), and (d) exhibits phosphorescence. A typical polymer was manufactured by polymerization of 1.768 g 2,7-dibromo-2',3',6',7'-tetrakis(2-methylbutoxy)spirobifluorene with 0.183 g N,N'-bis(4-bromophenyl)-N,N'-bis(4-tert-butylphenyl)benzidine by the Yamamoto coupling in PhMe-DMF mixture in the presence of 1,5-cyclooctadiene, Ni(COD)<sub>2</sub>, and 2,2'-bipyridyl.

IT Luminescent substances  
(electroluminescent; conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

IT	501434-82-8P	501434-82-8P	501434-85-1P	501434-87-3P	
	501434-88-4P	501434-90-8P	501434-92-0P	501434-94-2P	
	501434-95-3P	501434-96-4P	501434-97-5P	501434-98-6P	501434-99-7P
	501435-00-3P	501435-01-4P	501435-03-6P	501435-04-7P	501435-05-8P
	501435-07-0P	501435-08-1P	501435-10-5P	501435-11-6P	501435-12-7P
	501435-13-8P	501435-14-9P	501435-15-0P	501435-16-1P	501435-17-2P
	501435-18-3P	501435-20-7P	501435-21-8P	501435-23-0P	501435-24-1P
	501435-25-2P	501435-26-3P	501435-27-4P	501435-28-5P	501435-29-6P
	501435-30-9P	501657-52-9P			

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

IT 94544-77-1P, 5,8-Dibromo-2,3-diphenylquinoxaline 288071-87-4P,  
4,7-Bis(2-bromo-5-thienyl)-2,1,3-benzothiadiazole 501434-68-0P,  
2,7-Dibromo-8'-tert-butyl-5'-(4'-tert-butylphenyl)-2',3'-bis(2-methylbutoxy)spirobifluorene 501434-71-5P 501434-72-6P  
501434-73-7P, 4-Bromo-7-(2-bromo-5-thienyl)-2,1,3-benzothiadiazole  
501434-75-9P, 1-(2-Ethylhexyloxy)-4-methoxy-2,5-bis-(4-bromo-2,5-dimethoxystyryl)benzene 501434-76-0P, 2,3,6,7-Tetrakis(2-methylbutoxy)-2',7'-bis(4-bromostyryl)-9,9'spirobifluorene 501434-78-2P,  
1,4-Dibromo-2,5-(4-fluorostyryl)benzene 501434-80-6P,  
2,7-Dibromo-2',7'-(N,N-diphenylamino)-9,9'-spirobifluorene 501657-51-8P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(monomer; conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

L5 ANSWER 64 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:886592 HCAPLUS

DN 137:390857

TI Electroluminescent device having high color purity, luminescent efficiency, and durability

IN Igarashi, Tatsuya

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002334785	A	20021122	JP 2001-137506	20010508
PRAI	JP 2001-137506		20010508		

OS MARPAT 137:390857

AB The device has a light-emitting layer containing (1)  $\geq 1$  compound Ar(Ar11Ar12)(Ar21Ar22)(Ar31Ar32) [Ar11, Ar21, Ar31 = arylene; Ar12, Ar22,

Ar32 = H, substituents; ≥1 Ar11, Ar21, Ar31, Ar12, Ar22, and Ar32 has condensed (hetero)aryl; Ar = (hetero)arylene] and (2) ≥1 styryl derivative comprising C, H, O, S, and halogen as luminescent materials or charge-transporting materials.

TI Electroluminescent device having high color purity, luminescent efficiency, and durability

AB The device has a light-emitting layer containing (1) ≥1 compound Ar(Ar11Ar12)(Ar21Ar22)(Ar31Ar32) [Ar11, Ar21, Ar31 = arylene; Ar12, Ar22, Ar32 = H, substituents; ≥1 Ar11, Ar21, Ar31, Ar12, Ar22, and Ar32 has condensed (hetero)aryl; Ar = (hetero)arylene] and (2) ≥1 styryl derivative comprising C, H, O, S, and halogen as luminescent materials or charge-transporting materials.

ST electroluminescent device color purity luminescent efficiency durability; aryl compd styryl deriv electroluminescent device

IT Electroluminescent devices  
(electroluminescent device containing aryl compound and styryl derivative in light-emitting layer for high color purity, luminescent efficiency, and durability)

IT 151965-47-8P 349666-25-7P 349666-26-8P 349666-27-9P 349666-28-0P 349666-29-1P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(electroluminescent device containing aryl compound and styryl derivative in light-emitting layer for high color purity, luminescent efficiency, and durability)

IT 349666-30-4P 474302-40-4P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(electroluminescent device containing aryl compound and styryl derivative in light-emitting layer for high color purity, luminescent efficiency, and durability)

IT 90-44-8, Anthrone 626-39-1, 1,3,5-Tribromobenzene 636-28-2, 1,2,4,5-Tetrabromobenzene 349666-24-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(electroluminescent device containing aryl compound and styryl derivative in light-emitting layer for high color purity, luminescent efficiency, and durability)

IT 135804-06-7 142289-08-5 186412-15-7 213527-39-0 296269-66-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electroluminescent device containing aryl compound and styryl derivative in light-emitting layer for high color purity, luminescent efficiency, and durability)

L5 ANSWER 65 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:866801 HCAPLUS

DN 137:377517

TI Spirofluorene compounds, their preparation, intermediates of them, and blue-emitting organic electroluminescent devices using them.

IN Shibanuma, Tetsuo; Takada, Kazunori; Tamura, Shinichiro

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 45 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002326965	A	20021115	JP 2001-135248	20010502
PRAI	JP 2001-135248		20010502		
OS	MARPAT 137:377517				

AB The compds. I (benzo groups may be substituted and/or condensed) are prepared Intermediates for I, preparation of I, and organic

electroluminescent devices having an organic layer containing I are also claimed. I show good thermal stability, high luminescence efficiency, and give homogeneous thin film.

TI Spirofluorene compounds, their preparation, intermediates of them, and blue-emitting organic electroluminescent devices using them

AB The compds. I (benzo groups may be substituted and/or condensed) are prepared Intermediates for I, preparation of I, and organic electroluminescent devices having an organic layer containing I are also claimed. I show good thermal stability, high luminescence efficiency, and give homogeneous thin film.

ST spirofluorene prepn blue emitting org electroluminescent device; display org electroluminescent spirofluorene prepn

IT Electroluminescent devices  
(blue-emitting; preparation of spirofluorene compds. for blue-emitting organic electroluminescent devices)

IT Electroluminescent devices  
(displays; preparation of spirofluorene compds. for blue-emitting organic electroluminescent devices)

IT Luminescent screens  
(electroluminescent; preparation of spirofluorene compds. for blue-emitting organic electroluminescent devices)

IT 475099-91-3 475099-93-5 475099-95-7  
475099-98-0 475100-00-6 475100-02-8 475100-08-4  
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(preparation of spirofluorene compds. for blue-emitting organic electroluminescent devices)

IT 98-80-6, Phenylboric acid 486-52-2, 6,12-Dihydroindeno[1,2-b]fluorene  
2052-07-5, 2-Bromobiphenyl 5122-94-1 43100-38-5 83947-50-6  
126393-38-2 475100-24-4 475100-28-8 475100-38-0  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of spirofluorene compds. for blue-emitting organic electroluminescent devices)

IT 5695-13-6P, Indeno[1,2-b]fluorene-6,12-dione 475100-13-1P 475100-15-3P  
475100-17-5P 475100-18-6P 475436-98-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of spirofluorene compds. for blue-emitting organic electroluminescent devices)

IT 475100-20-0P 475100-22-2P 475100-25-5P 475100-27-7P 475100-33-5P  
475100-36-8P 475100-37-9P 475100-39-1P 475100-40-4P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(preparation of spirofluorene compds. for blue-emitting organic electroluminescent devices)

L5 ANSWER 66 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:827438 HCAPLUS

DN 137:343704

TI Amorphous polyarylenes as materials for blue-emitting electroluminescent device (LED)

IN Takada, Kazunori; Shibamura, Tetsuo; Tamura, Shinichiro

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 20 pp.  
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2002316955	A	20021031	JP 2001-122788	20010420
PRAI	JP 2001-122788		20010420		
OS	MARPAT 137:343704				

AB Title compds., which are vacuum deposited in manufacture of LED, are represented as general formula I [R1, R2 = H, C≤10 alkyl, alkyloxy, alkylamino; R3 = all-4-C6H4C6H4Ph (substituted with similar groups as in R1, R2); n1, n2 = 0-5] or their analogs. Thus, I (R1 = R2 = H, R3 = 4-BrC6H4) was reacted with 4-(HO)2BC6H4Ph to give 65% polyarylene, which showed emission peaks at 376 and 396 nm. A LED with high electroluminescent efficacy was manufactured using the polyarylene.

TI Amorphous polyarylenes as materials for blue-emitting electroluminescent device (LED)

AB Title compds., which are vacuum deposited in manufacture of LED, are represented as general formula I [R1, R2 = H, C≤10 alkyl, alkyloxy, alkylamino; R3 = all-4-C6H4C6H4Ph (substituted with similar groups as in R1, R2); n1, n2 = 0-5] or their analogs. Thus, I (R1 = R2 = H, R3 = 4-BrC6H4) was reacted with 4-(HO)2BC6H4Ph to give 65% polyarylene, which showed emission peaks at 376 and 396 nm. A LED with high electroluminescent efficacy was manufactured using the polyarylene.

ST blue LED amorphous polyarylene prepn; electroluminescent device  
blue amorphous polyarylene

IT Electroluminescent devices  
(blue-emitting; amorphous polyarylenes as materials for blue-emitting electroluminescent device)

IT 473906-56-8P  
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(amorphous polyarylenes as materials for blue-emitting electroluminescent device)

IT 159-66-0, 9,9'-Spirobi[9H-fluorene] 3218-36-8, p-Phenylbenzaldehyde 5122-94-1, 4-Biphenylboronic acid 5933-32-4, 4-Bromobenzoylhydrazide 67665-11-6  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(amorphous polyarylenes as materials for blue-emitting electroluminescent device)

IT 22824-83-5P 22824-84-6P 70657-80-6P 70657-81-7P 73100-45-5P 473906-63-7P 473906-64-8P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(amorphous polyarylenes as materials for blue-emitting electroluminescent device)

IT 473906-61-5P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(amorphous polyarylenes as materials for blue-emitting electroluminescent device)

IT 473906-52-4 473906-53-5 473906-54-6 473906-55-7 473906-58-0 473906-59-1 473906-60-4 473906-62-6  
RL: TEM (Technical or engineered material use); USES (Uses)  
(amorphous polyarylenes as materials for blue-emitting electroluminescent device)

L5 ANSWER 67 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:638080 HCAPLUS

DN 137:176925

TI Organic light emitting device and display device using the same

IN Seo, Satoshi; Yamazaki, Shunpei

PA Japan

SO U.S. Pat. Appl. Publ., 45 pp.  
CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002113546	A1	20020822	US 2002-81558	20020220



SG 118118	A1	20060127	SG 2002-836	20020218
JP 2002324673	A	20021108	JP 2002-43419	20020220
TW 233312	B	20050521	TW 2002-91102964	20020220
CN 1372434	A	20021002	CN 2002-105131	20020222
PRAI JP 2001-45883	A	20010222		

AB Organic light-emitting devices are described in which hole-transporting, light-emitting, and electron-transporting regions are joined by compositionally graded mixed regions. The devices avoid problems with interfaces between layers which are present in the conventional laminate structure. The devices may incorporate color conversion layers or color filters, and may be constructed to serve as displays. Electronic equipment (video cameras, digital cameras, image reproduction apparatus, portable computers, personal computers, and mobile telephones) employing the displays is also described.

IT Electroluminescent devices  
(displays, organic; organic light emitting devices with graded interfaces and electronic devices using them)

IT Luminescent screens  
(electroluminescent, organic; organic light emitting devices with graded interfaces and electronic devices using them)

IT Electroluminescent devices  
(organic; organic light emitting devices with graded interfaces and electronic devices using them)

IT 198-55-0, Perylene 2085-33-8, Tris(8-hydroxyquinolinato)aluminum 4733-39-5, Bathocuproin 18115-70-3, Lithium acetylacetonate, uses 19205-19-7, N,N'-Dimethylquinacridone 51325-91-8, 4-(Dicyanomethylene)-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran 58280-31-2 65181-78-4, 4,4'-Bis[N-(3-methylphenyl)-N-phenylamino]biphenyl 123847-85-8, 4,4'-Bis-[N-(1-naphthyl)-N-phenylamino]biphenyl 124729-98-2, 4,4',4''-Tris[N-(3-methylphenyl)-N-phenylamino]triphenyl amine 146162-54-1 189363-47-1 296269-66-4

RL: DEV (Device component use); USES (Uses)  
(organic light emitting devices with graded interfaces and electronic devices using them)

L5 ANSWER 68 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:504795 HCAPLUS

DN 137:63354

TI Spiro compounds based on boron or aluminum and the use of the same in the electronics industry

IN Stoessel, Philipp; Spreitzer, Hubert; Becker, Heinrich; Drott, Jacqueline

PA Covion Organic Semiconductors G.m.b.H., Germany

SO PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002051850	A1	20020704	WO 2001-EP15177	20011220
	W: CN, JP, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	EP 1345948	A1	20030924	EP 2001-995707	20011220
	EP 1345948	B1	20041013		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	JP 2004525878	T	20040826	JP 2002-552944	20011220
	US 2004063981	A1	20040401	US 2003-250593	20031023
	US 6911551	B2	20050628		
PRAI	EP 2000-128292	A	20001222		

WO 2001-EP15177 W 20011220  
 OS CASREACT 137:63354; MARPAT 137:63354  
 AB The invention relates to substituted spiro compds. based on boron or aluminum and the use of the same in the electronics industry. Thus, lithiation of 2,7,2',7'-tetrabromo-9,9'-spirobifluorene with t-BuLi in THF followed by treatment with fluorodimesitylborane gave 55-65% title spiro compound, 2,7,2',7'-tetrakis(dimesitylboryl)-9,9'-spirobifluorene, which was used for organic light emitting device. The inventive compds. can be used as electron transport material, material for blocking holes and/or host material in organic electroluminescent and/or phosphorescent devices, as electron transport material in photocopiers, as electron acceptor or transport material in solar cells, as charge transport material in organic integrated circuits and in organic solid lasers or organic photodetectors.

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB The invention relates to substituted spiro compds. based on boron or aluminum and the use of the same in the electronics industry. Thus, lithiation of 2,7,2',7'-tetrabromo-9,9'-spirobifluorene with t-BuLi in THF followed by treatment with fluorodimesitylborane gave 55-65% title spiro compound, 2,7,2',7'-tetrakis(dimesitylboryl)-9,9'-spirobifluorene, which was used for organic light emitting device. The inventive compds. can be used as electron transport material, material for blocking holes and/or host material in organic electroluminescent and/or phosphorescent devices, as electron transport material in photocopiers, as electron acceptor or transport material in solar cells, as charge transport material in organic integrated circuits and in organic solid lasers or organic photodetectors.

IT 124729-98-2 189363-47-1 296269-66-4  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
 (use in electronics industry)

L5 ANSWER 69 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2002:503505 HCAPLUS  
 DN 137:70359

TI Organic light-emitting devices containing a region or a mixed layer provided for lowering energy barriers at interfaces between the organic layers, and electronic devices employing the light-emitting devices

IN Seo, Satoshi; Yamazaki, Shunpei  
 PA SEL Semiconductor Energy Laboratory Co., Ltd., Japan  
 SO Eur. Pat. Appl., 78 pp.  
 CODEN: EPXXDW

DT Patent  
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1220339	A2	20020703	EP 2001-130487	20011220
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	TW 545080	B	20030801	TW 2001-90131393	20011218
	SG 93298	A1	20021217	SG 2001-7839	20011219
	US 2002121860	A1	20020905	US 2001-24699	20011221
	JP 2002324680	A	20021108	JP 2001-395213	20011226
	CN 1362747	A	20020807	CN 2001-130274	20011228
	CN 1870285	A	20061129	CN 2006-10091624	20011228
PRAI	JP 2000-400730	A	20001228		
	JP 2001-45847	A	20010221		
	CN 2001-130274	A3	20011228		

AB Light emitting devices are described which comprise at least a first layer comprising a first organic compound; and a second layer comprising a second organic compound which is different from the first organic compound, where a region

or a mixed layer comprising the first organic compound and the second organic compound between the first layer and the second layer is provided for lowering energy barriers at interfaces between the organic layers. The devices may contain hole-injecting, hole-transporting, electron-transporting, electron-injecting and light-emitting layers as organic compound layers, and may have more than one regions or mixed layers. Electronic devices employing the light-emitting devices are also discussed.

ST org electroluminescent device mixed layer interface energy decrease; electronic device OLED mixed layer interface energy decrease

IT Electric apparatus

Electroluminescent devices

Electronic device fabrication

Interfacial energy

Optical imaging devices

(light-emitting devices containing a region or a mixed layer provided for lowering energy barriers at interfaces between organic layers, and electronic devices employing light-emitting devices)

IT 296269-66-4

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(light-emitting layer; fabrication of light-emitting devices containing mixed layer lowering energy barriers at interfaces between organic layers and containing)

L5 ANSWER 70 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2001:816318 HCAPLUS

DN 135:350356

TI White luminescent light emitting organic electroluminescent device

IN Kim, Dong Gun; Cho, Sung Woo

PA Samsung SDI Co., Ltd., S. Korea

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001313180	A	20011109	JP 2001-78812	20010319
	KR 2001092905	A	20011027	KR 2000-15572	20000327
	US 2002027416	A1	20020307	US 2001-812936	20010327
	US 6614176	B2	20030902		
PRAI	KR 2000-15572	A	20000327		

AB The invention relates to a white luminescence-emitting organic electroluminescent device comprising  $\geq 2$  electroluminescent layers fabricated between a hole-transport layer and an electron-transport layer, wherein the charge transport buffer layer is inserted between the electroluminescent layers, so that the ratio of the exciton generation in the two electroluminescent layers may be readily tuned by appropriately adjusting the thickness of the buffer layer.

TI White luminescent light emitting organic electroluminescent device

AB The invention relates to a white luminescence-emitting organic electroluminescent device comprising  $\geq 2$  electroluminescent layers fabricated between a hole-transport layer and an electron-transport layer, wherein the charge transport buffer layer is inserted between the electroluminescent layers, so that the ratio of the exciton generation in the two electroluminescent layers may be readily tuned by appropriately adjusting the thickness of the buffer layer.

ST white luminescent light emitting org electroluminescent

device  
 IT Electroluminescent devices  
     (white luminescent light emitting organic  
       electroluminescent device)  
 IT 147-14-8, Copper phthalocyanine 517-51-1, Rubrene 2085-33-8, Al 8q  
 7429-90-5, Aluminum, uses 7789-24-4, Lithium fluoride, uses  
 50926-11-9, ITO 123847-85-8, NPB 124729-98-2, 4,4',4'''-Tris[N-3-  
 methylphenyl-N-phenyl-amino]triphenylamine 200052-70-6 213527-39-0  
 296269-66-4  
 RL: DEV (Device component use); USES (Uses)  
     (white luminescent light emitting organic  
       electroluminescent device)

L5 ANSWER 71 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2001:796636 HCAPLUS  
 DN 135:350270  
 TI Light emitting devices  
 IN Kohama, Toru; Makiyama, Akira; Tominaga, Takeshi  
 PA Toray Industries, Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF

DT Patent  
 LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001307879	A	20011102	JP 2000-115391	20000417
PRAI	JP 2000-115391		20000417		

AB The devices comprise a phosphor emitting a peak at 400-550 nm and  
 comprising a spiro derivative

ST org electroluminescent device spiro phosphor

IT Anodes

Cathodes

Fluorescence

Luminescent substances

(light emitting devices)

IT 87-01-4, Coumarin 311 159-68-2, 9,9'-Spirobi[9H-9-silafluorene]  
 4733-39-5, 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline 7439-93-2,  
 Lithium, uses 50926-11-9, ITO 62423-24-9 65181-78-4 121207-31-6  
 123847-85-8,  $\alpha$ -NPD 252873-65-7 296269-66-4,  
 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene 371227-68-8  
 RL: DEV (Device component use); USES (Uses)  
     (light emitting devices)

L5 ANSWER 72 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2001:745724 HCAPLUS  
 DN 135:310633

TI Organic electroluminescent devices and manufacture

IN Ishii, Satoshi; Tsuge, Hodaka; Aikawa, Koichiro; Komatsuzaki, Akihiro;  
 Shimada, Yoichi

PA Honda Motor Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001284054	A	20011012	JP 2000-91917	20000329
PRAI	JP 2000-91917		20000329		

OS MARPAT 135:310633

AB The devices comprise: a glass substrate; an ITO 1st electrode; a hole  
 transporting layer ; a phosphor layer; an electron transport layer; and a

MgAg 2nd electrode, where the electron transport layer comprises I, II and/or III (Al-4 = II or III; R = H, F, CN, alkyl, alkoxy, alkylthio, amino, aryl, aryloxy, heterocyclic).

TI Organic electroluminescent devices and manufacture  
ST org electroluminescent phosphor coumarin electron transport  
IT Electroluminescent devices  
Electron transport  
Glass substrates  
Hole transport  
Phosphors  
(organic electroluminescent devices and manufacture)

IT 91-64-5, Coumarin 2085-33-8, Tris(8-quinolinolato)aluminum 9003-53-6, Polystyrene 9017-21-4, Polyvinyltoluene 15082-28-7 25036-01-5, Polyacenaphthylene 25067-59-8, Poly-N-vinyl carbazole 25232-08-0, Poly-4-vinylbiphenyl 28406-56-6, Poly2-vinylnaphthalene 29659-51-6, Poly-9-vinylanthracene 37271-44-6 50926-11-9, ITO 59269-51-1, Polyvinylphenol 86885-30-5, Poly-9-vinylphenanthrene 296269-66-4 365999-66-2 365999-67-3 365999-68-4  
RL: DEV (Device component use); USES (Uses)  
(organic electroluminescent devices and manufacture)

L5 ANSWER 73 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2001:400127 HCAPLUS  
DN 135:187082  
TI White and blue temperature stable and efficient OLEDs using amorphous spiro transport and spiro emitting compounds  
AU Spreitzer, Hubert; Vestweber, Horst; Stoessel, Philipp; Becker, Heinrich  
CS Covion Organic Semiconductors GmbH, Frankfurt, D-65926, Germany  
SO Proceedings of SPIE-The International Society for Optical Engineering (2001), 4105(Organic Light-Emitting Materials and Devices IV), 125-133  
CODEN: PSISDG; ISSN: 0277-786X  
PB SPIE-The International Society for Optical Engineering  
DT Journal  
LA English  
AB The temperature stability of white and blue OLEDs was studied by observing the I-V, EL-V and the spectral characteristics of various devices stored at elevated temperature ( $\leq 130^\circ$ ). Blue multilayer organic light emitting diodes (OLEDs) containing PEDOT (polyethylenedioxythiophene) or PANI (polyaniline) derivs. as the hole injection and buffer layer, aromatic diamines like Spiro-TAD (2,2',7,7'-tetrakis(diphenylamino)spiro-9,9'-bifluorene) as a hole transport material (HTM), Spiro-DPVBi (2,2',7,7'-tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene) as an emitting material (EM) and of Alq3 (tris(8-hydroxyquinolinato)aluminum) as the electron-injection and electron-transport layer (ETL) were fabricated. White OLEDs were prepared, containing an addnl. DCM (dicyanmethylen-2-methyl-6-(p-dimethylaminostyryl)-4H-pyran) doped Alq3 layer between the Spiro-DPVBi and Alq3 layer. Use of Spiro-TAD as a hole transport material (HTM) and of Spiro-DPVBi as an emitting material (EM) resulted in dramatically improved temperature stability: for the white and blue OLED no significant deterioration up to  $130^\circ$  were found. Devices consisting of non spiro components like NPB and/or DPVBi already started to degrade at much lower temps.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electric current-potential relationship  
Electric transport properties  
Luminescence, electroluminescence  
(of white and blue temperature stable and efficient LEDs using amorphous spiro transport and spiro emitting compds.)

IT Electroluminescent devices  
(white and blue temperature stable and efficient LEDs using amorphous spiro transport and spiro emitting compds.)

IT 296269-66-4, 2,2',7,7'-Tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene  
RL: DEV (Device component use); USES (Uses)  
(white and blue temperature stable and efficient LEDs using emitting material)

L5 ANSWER 74 OF 74 HCAPLUS COPYRIGHT 2007 ACS on STN  
AN 2000:462272 HCAPLUS  
DN 133:258976

TI Temperature stability of OLEDs using amorphous compounds with spiro-bifluorene core

AU Spreitzer, Hubert; Schenk, Hermann W.; Salbeck, Josef; Weisssoertel, Frank; Reil, Heike; Riess, Walter

CS Ind. Park Höchst, Covion Organic Semiconductors GmbH, Frankfurt, Germany  
SO Proceedings of SPIE-The International Society for Optical Engineering (1999), 3797(Organic Light-Emitting Materials and Devices III), 316-324  
CODEN: PSISDG; ISSN: 0277-786X

PB SPIE-The International Society for Optical Engineering

DT Journal

LA English

AB The temperature stability of OLEDs was studied by observing the I-V and EL-V characteristics of various devices stored at elevated temperature (up to 140°). Results reported in this paper concern the standard KODAK structure for a green OLED (i.e. anode/CuPc/NPB/AlQ3/cathode), the standard IDEMITSU structure for a blue OLED (i.e. anode/CuPc/NPB/DPVBi/AlQ3/cathode) and variants of those using high Tg materials consisting of a spiro-bifluorene core. Use of Spiro-TAD as a hole transport material (HTM) and of Spiro-DPVBi as an emitting material (EM) resulted in considerable improvements. While the initial performance of the virgin devices is considerably unchanged, the temperature stability increases dramatically: for the green OLED no significant deterioration up to 140° is found, compared to the standard device including NPB already starting to degrade slightly >100°; the blue OLED is stable up to .apprx.120° (particularly the color coordinates of the emitted light) whereas the standard device using DPVBi already deteriorates at .apprx.80°.

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

IT Electroluminescent devices  
Luminescence, electroluminescence  
Thermal stability

(temperature stability of OLEDs using amorphous compds. with spiro-bifluorene core)

IT 123847-85-8, NPB 128055-74-3, 2,2',7,7'-Tetrabromo-spiro-9,9'-bifluorene  
142289-08-5 189363-47-1 296269-66-4

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)  
(temperature stability of OLEDs using amorphous compds. with spiro-bifluorene core)

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COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
242.38	416.58

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
-57.72	-57.72

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